

UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION

**Midas Green Technologies, LLC,**

Plaintiff,

- vs. -

**Rhodium Enterprises, Inc.;**  
**Rhodium Technologies LLC;**  
**Rhodium 10mw LLC;**  
**Rhodium 2.0 LLC;**  
**Rhodium 30mw LLC;**  
**Rhodium Encore LLC;**  
**Rhodium Industries LLC;**  
**Rhodium JV LLC;**  
**Rhodium Renewables LLC;**  
**Rhodium Shared Services LLC;**  
**Rhodium Shared Services PR Inc.;**  
**Chase Blackmon;**  
**Cameron Blackmon;**  
**Nathan Nichols, and**  
**Rhodium 2.0 Sub LLC;**  
**Rhodium Encore Sub LLC;**  
**Rhodium Renewables Sub LLC;**  
**Rhodium Ready Ventures LLC;**  
**Rhodium 10MW Sub LLC;**  
**Rhodium 30MW Sub LLC;**  
**i Ventures Enterprises LLC (fka Energy**  
**Tech LLC);**  
**Air HPC LLC;**  
**Jordan HPC LLC; and**  
**Jordan HPC Sub LLC,**

Defendants

Civil Action No. 6:22-cv-00050-ADA

**Jury Trial Demanded**

**PLAINTIFF'S SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 4**

Pursuant to Federal Rules of Civil Procedure 26, 33, and 34, Plaintiff Midas Green Technologies, LLC ("Midas") hereby provides its supplemental responses and objections to Interrogatory No. 2 from Defendants' First Set of Interrogatories to Plaintiff. The following

responses are made only for the purposes of this action based on Midas' present knowledge. Midas expressly reserves the right to amend or further supplement its responses.

Midas incorporates by reference its general objections set forth in Plaintiff's Responses and Objections to Defendants' First Set of Interrogatories to Plaintiff.

### **SPECIFIC RESPONSES AND OBJECTIONS**

#### **INTERROGATORY No. 4:**

If you contend that any Midas product practices any Asserted Claim of the Patents-in-Suit, describe such contention in detail, for each product, on a claim-by-claim and element-by-element basis, and the sales amounts on a quarterly basis for each such product.

#### **RESPONSE TO INTERROGATORY No. 4: (August 31, 2022):**

Midas objects to this Interrogatory as compound in that it seeks information responsive to two separate and discrete topics, namely, (1) details concerning Midas' contention that its immersion cooling products "practice[] any Asserted Claim of the Patents-in-Suit"; and (2) "the sales amounts on a quarterly basis for each such product." Midas will treat this Interrogatory as two interrogatories for the purposes of the Court's limitations on the number of interrogatories.

Midas objects to the first portion of this Interrogatory as overly broad and unduly burdensome, and disproportionate to the needs of this case, because it seeks to compel Midas to generate separate claim charts for "any" of the relevant Midas products. Subject to the foregoing, Midas directs Defendants to exemplary claim charts produced at MIDAS0042282 - MIDAS0042326; MIDAS0042237- MIDAS0042281; and MGT0049849 - MGT0049853.

As to the second portion of this Interrogatory, Midas will shortly provide business records from which may be derived the sales amounts for each of the above-identified Midas products.

**SUPPLEMENTAL RESPONSE TO INTERROGATORY No. 4: (December 2, 2022):**

Midas incorporates by reference its previous objections and responses.

Pursuant to the Court's Discovery Order (Dkt. 68), Midas herewith provides the following claim charts for its commercial products:

- Claim Charts for Midas Crypto Systems – Exhibit A
- Claim Charts for Midas 50U Tank Systems – Exhibit B
- Claim Charts for Midas 12U Tank Systems – Exhibit C

Midas' reserves it right to supplement.

Dated: December 2, 2022

Respectfully submitted,

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[benjamin.weed@klgates.com](mailto:benjamin.weed@klgates.com)

Counsel for Plaintiff  
Midas Green Technologies, LLC

CERTIFICATE OF SERVICE

I hereby certify that counsel of record who have appeared electronically in this case are being served on December 2, 2022 with a copy of this document via the email address that counsel of record supplied to the Court's ECF system.

/s/ Henry Pogorzelski  
Henry Pogorzelski

## **Exhibit A**

## **‘457 and ‘446 Claim Charts for Midas Crypto Systems**

These claim charts are intended to provide notice to defendants of Midas’ contention that the **Midas Crypto Systems** (e.g., its SC3TV4-152 tank systems, optionally including at least one “water pump skid” such as Midas’ W1P0S50 or similar system referenced in Midas’s response to Interrogatory No. 3, and including at least one cooling tower such as the 18-fan adiabatic towers manufactured by Guenter and Kelvion, or similar system referenced in Midas’ response to Interrogatory No. 3, and including installation services provided by Midas personnel, as well as its SC2TV4-152 tank systems, again optionally including the foregoing “water pump skid(s)” and cooling tower(s) and installation services) practice the asserted claims, *i.e.*, ‘457 Patent, Claims 1, 2, 5, 6, 7, 10, 11, 14, 15, and 16; and ‘446 Patent, Claims 1, 2, 5, 6, 7, and 10. Please note that the SC3TV4-152 tank systems are sometimes referred to as “Midas Simple Crypto 3 Slot System,” and the SC2TV4-152 tank systems are sometimes referred to as “Midas Simple Crypto 2 Slot System.”

Each claim element or limitation of the asserted claims is literally present in the Midas Crypto Systems. Any claim element or limitation that is not literally present in the Midas Crypto Systems (if any), is present under a doctrine of equivalents.

## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

To the extent that the preamble may be limiting:

An appliance immersion cooling system

### Where Found

The Midas Crypto Systems is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, ‘457 *Patent*, col. 3, lines 45-46, *e.g.* Cryptocurrency Miners

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.



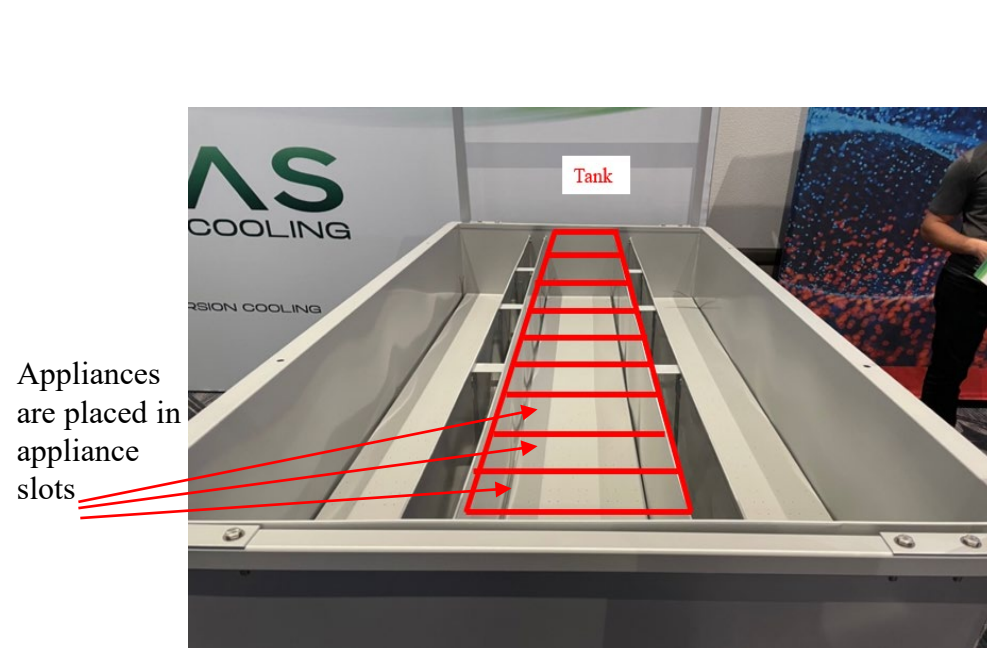
## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Where Found

The Midas Crypto Systems include a tank. Each tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances, i.e., crypto miners.



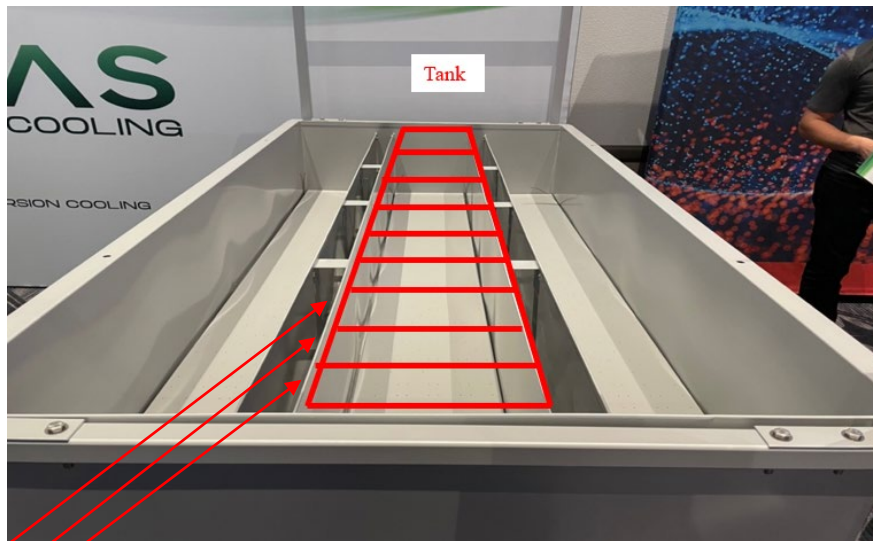
## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

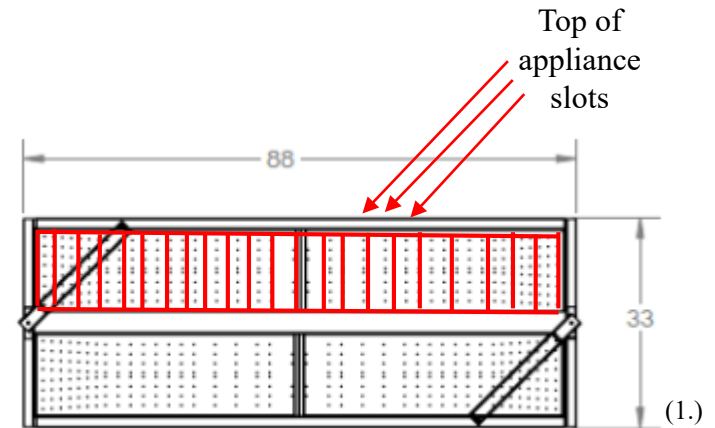
each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Where Found

The Midas Crypto Systems include appliance slots, *e.g.*, each slot receiving a respective appliance, *i.e.*, crypto miners, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



Top of  
appliance  
slots



(1.) MIDAS0046259.

## ‘457 Claim 1 Chart of Midas Crypto Systems

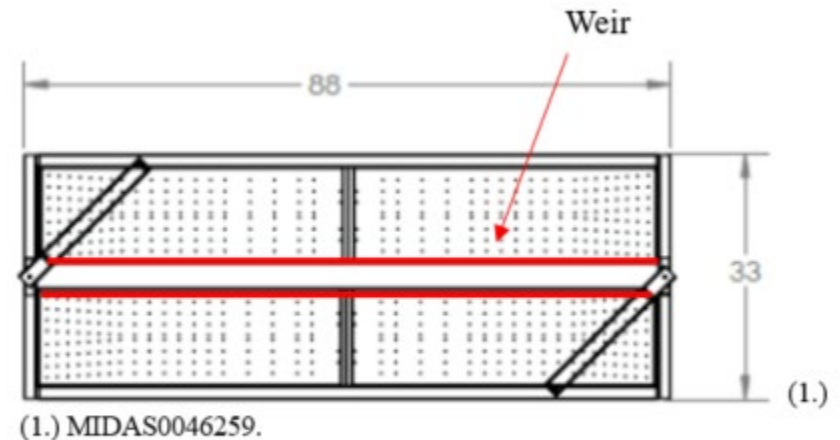
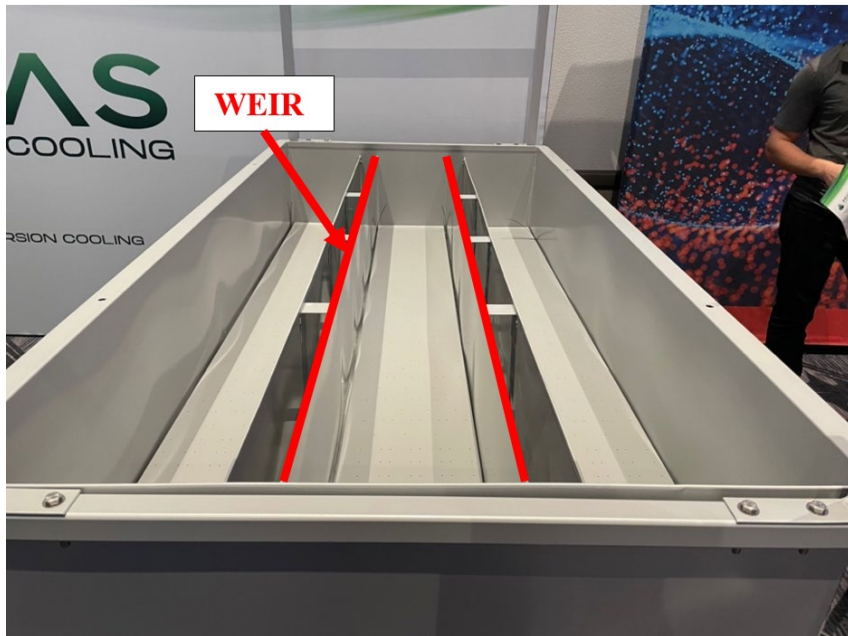
### Claim Limitation

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Where Found

The Midas Crypto Systems include a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



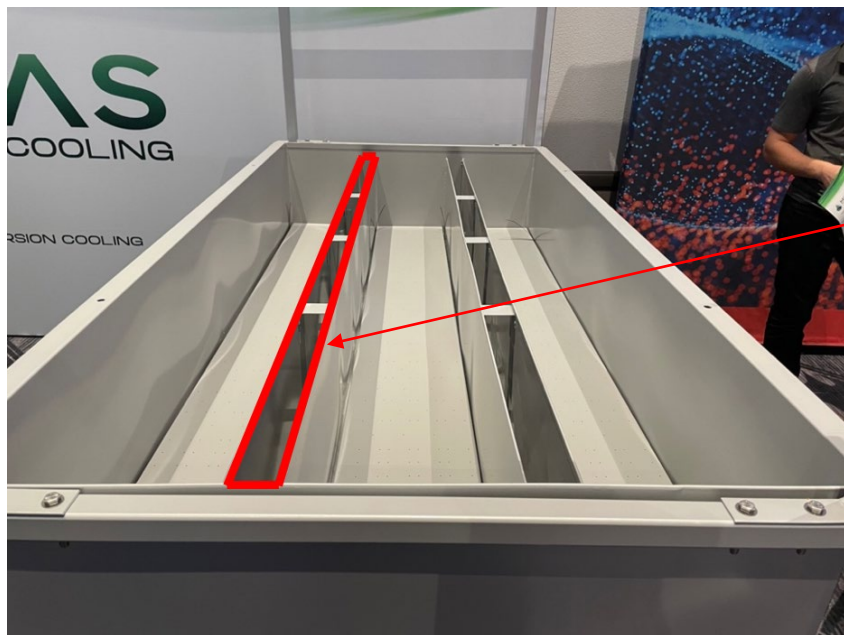
## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

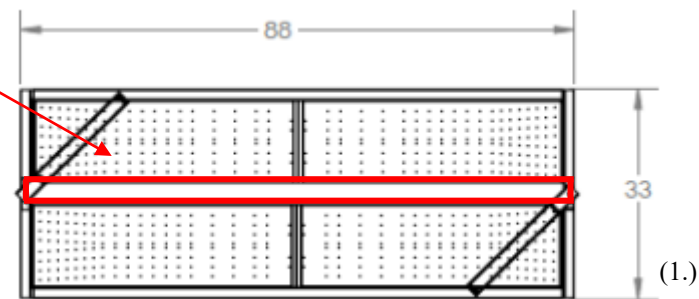
a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir

### Where Found

The Midas Crypto Systems include a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.



Reservoir is  
region  
below red  
lines



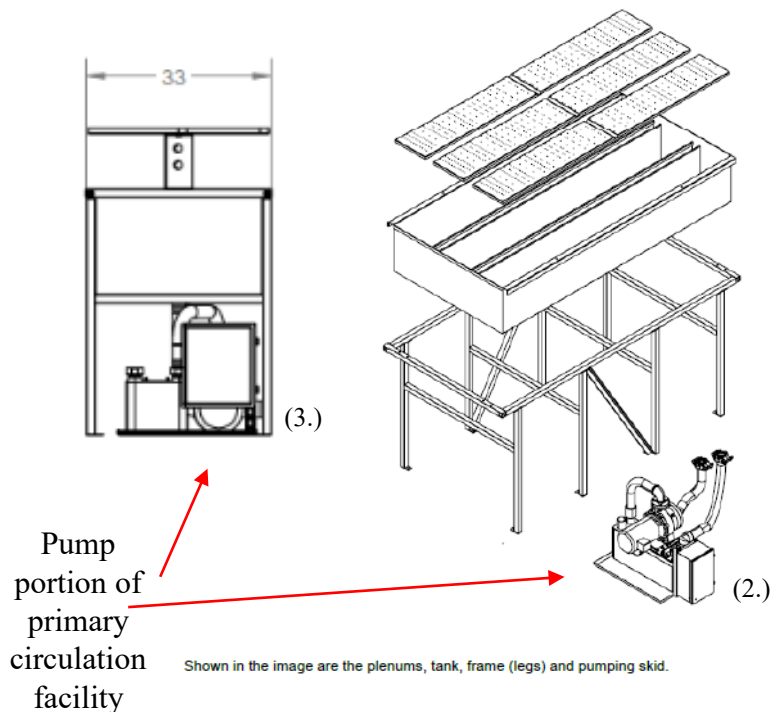
(1.) MIDAS0046259.

## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

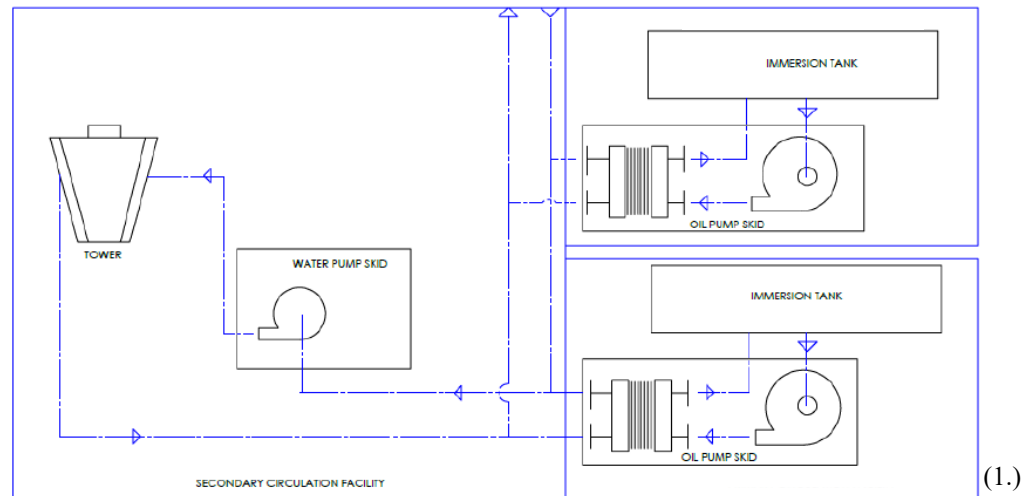
a primary circulation facility adapted to circulate the dielectric fluid through the tank

11.1 The parts



### Where Found

The Midas Crypto Systems include a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump and associated piping sends the hot dielectric fluid through the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



- (1.) MIDAS0046261.
- (2.) MIDAS0046265.
- (3.) MIDAS0046259.



## ‘457 Claim 1 Chart of Midas Crypto Systems

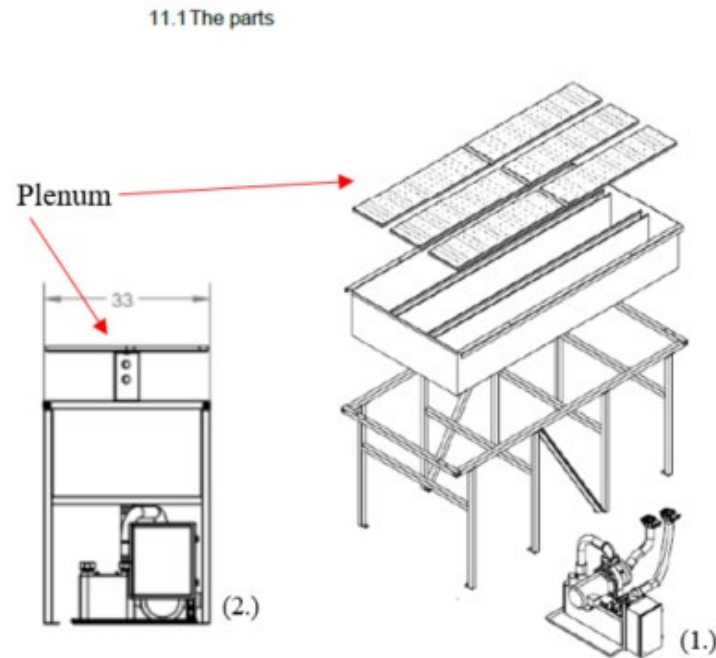
### Claim Limitation

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Where Found

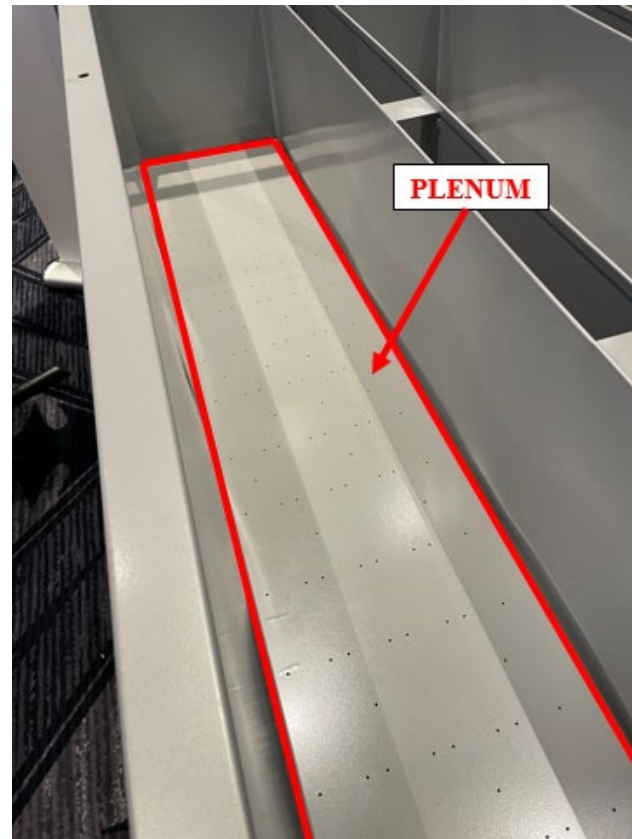
The Midas Crypto Systems include a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



Shown in the image are the plenums, tank, frame (legs) and pumping skid.

(1.) MIDAS0046265.

(2.) MIDAS0046259.



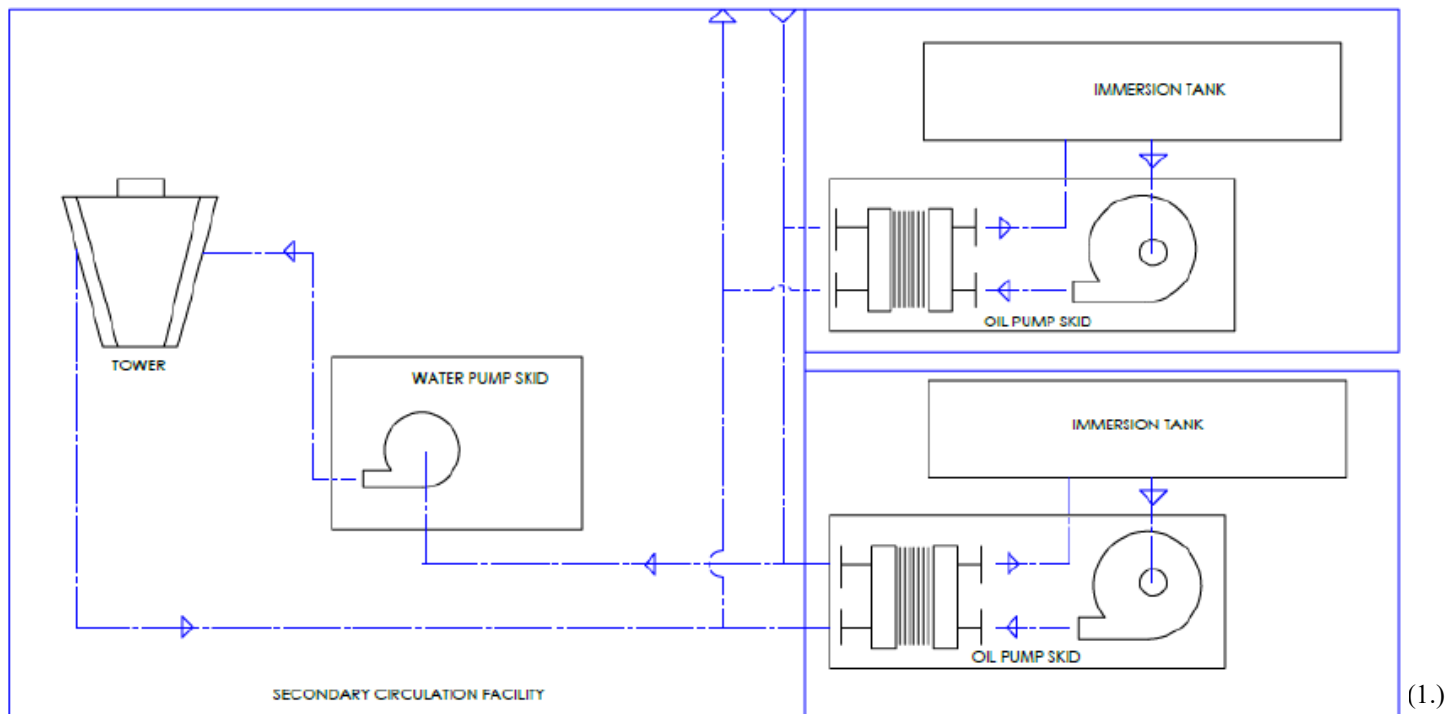
## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Where Found

The Midas Crypto Systems include a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted, e.g., water pump skid and cooling tower and associated pumps, heat exchangers, etc., that remove heat from the hot dielectric fluid and dissipate heat to the environment.



(1.) MIDAS0046261.

## ‘457 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

### Where Found

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.



## ‘457 Dependent Claim 2 Chart of Midas Crypto Systems

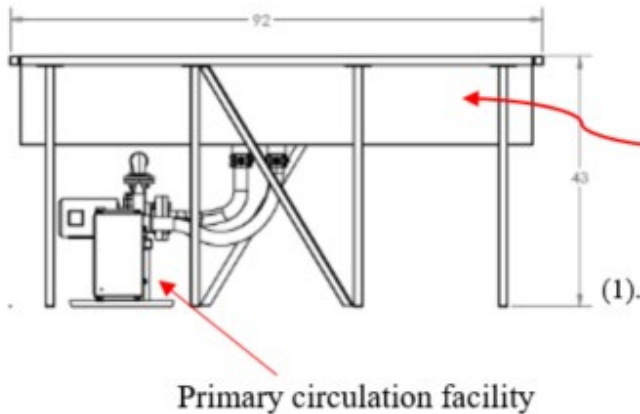
### Claim Limitation

The system of claim 1 wherein the tank and primary circulation facility comprise a highly-integrated module.

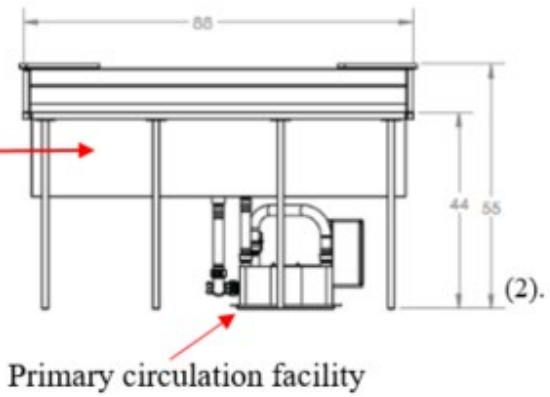
### Where Found

The Midas Crypto Systems include a tank and primary circulation facility which comprise a highly-integrated module, i.e., the tank, plenum, and circulation pump are tightly co-located.

5.2 Midas Simple Crypto 3 Slot System



5.1 Midas Simple Crypto 2 Slot System



(1.) MIDAS0046259.  
(2.) *Id.*

## ‘457 Claim 5 Chart of Midas Crypto Systems

### Claim Limitation

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Where Found

The Midas Crypto Systems include a control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location, *e.g.*, the various sensors located on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the sensors on the water skid(s), the sensors associated with the cooling tower(s), including hardware and/or transmission/interface wiring or other means of communication for the sensors and various controllers, and optionally including one or more centralized computer systems specified or provided by a customer.

## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

To the extent that the preamble may be limiting:

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising

### Where Found

The Midas Crypto Systems is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, ‘457 *Patent*, col. 3, lines 45-46, *e.g.* Cryptocurrency Miners

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.

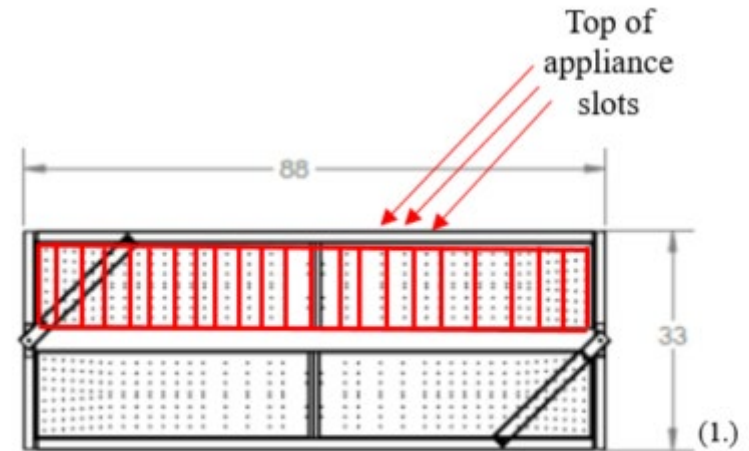
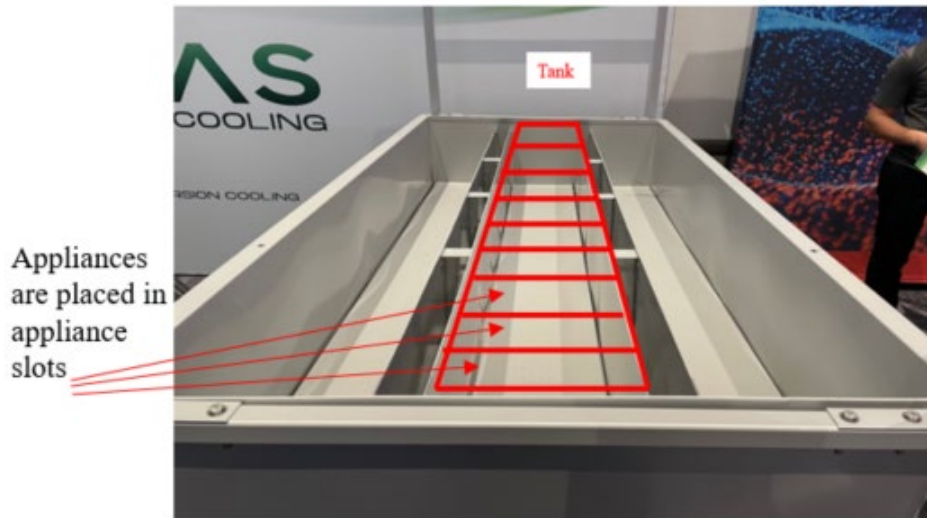
## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Where Found

The Midas Crypto Systems include a tank. Each tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances, i.e., crypto miners.



(1.) MIDAS0046259

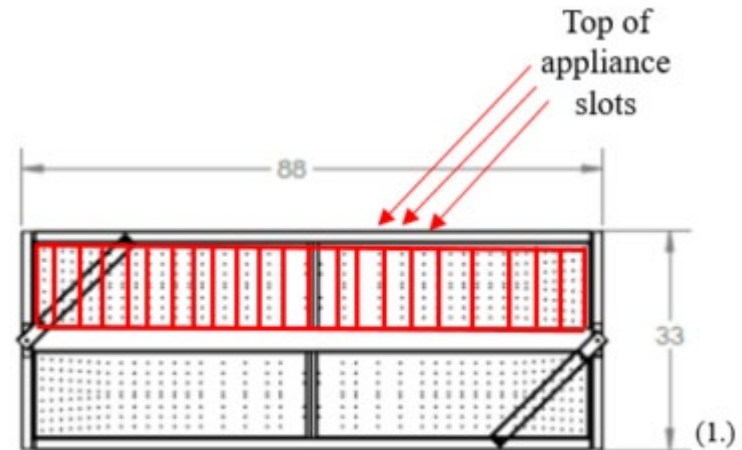
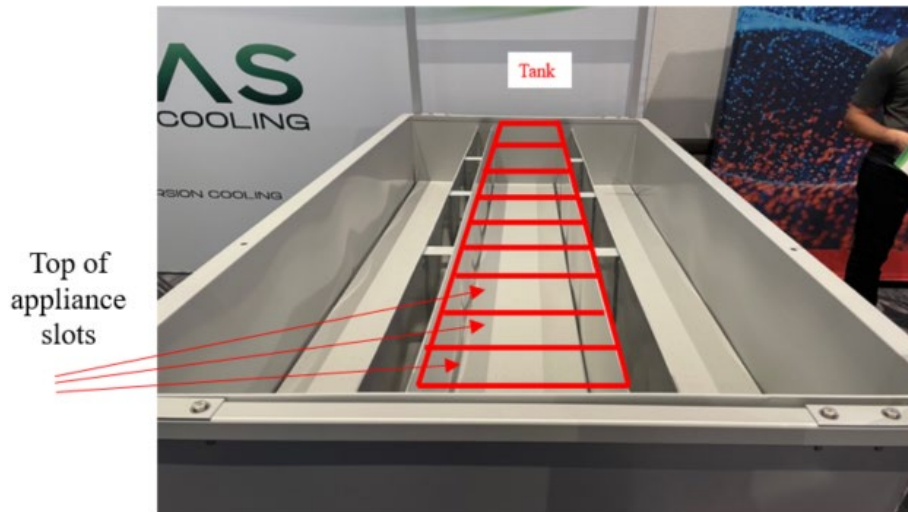
## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Where Found

The Midas Crypto Systems include appliance slots, *e.g.*, each slot receiving a respective appliance, *i.e.*, crypto miners, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



(1.) MIDAS0046259

## ‘457 Claim 6 Chart of Midas Crypto Systems

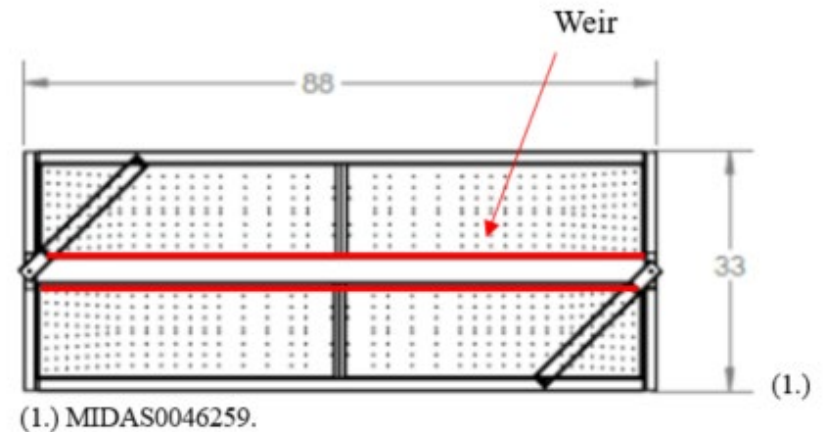
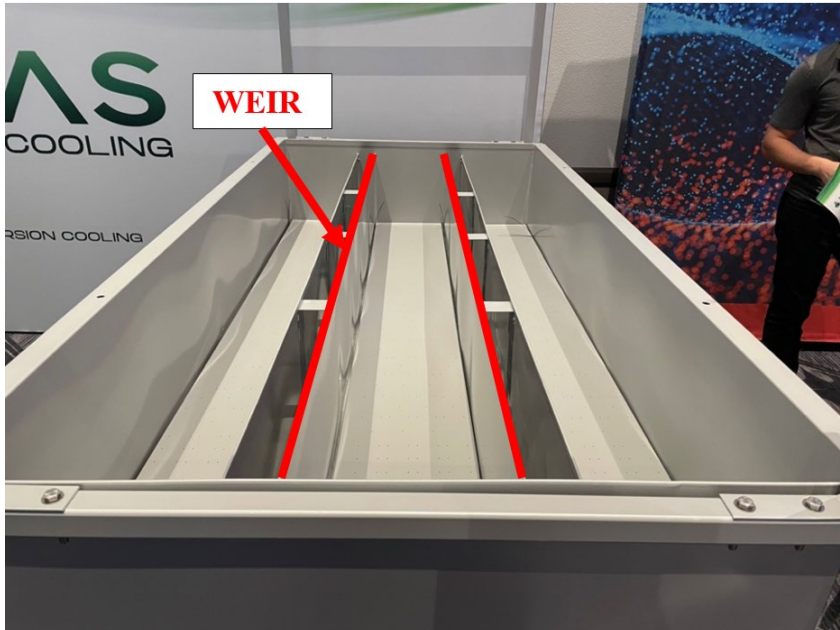
### Claim Limitation

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Where Found

The Midas Crypto Systems include a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.





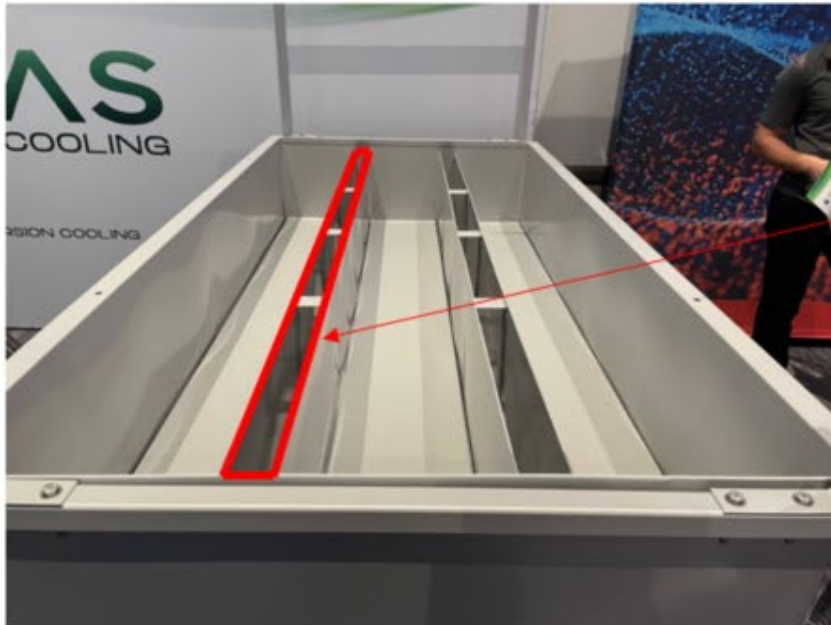
## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

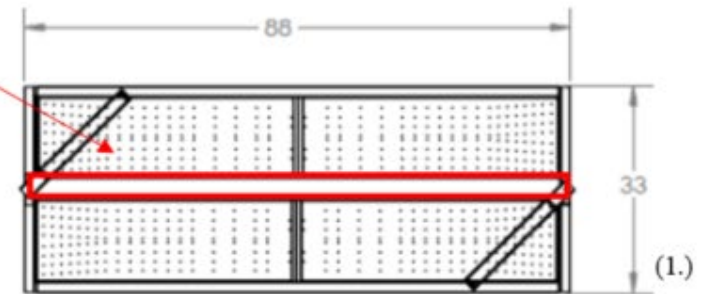
a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir;

### Where Found

The Midas Crypto Systems include a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.



Reservoir is  
region  
below red  
lines



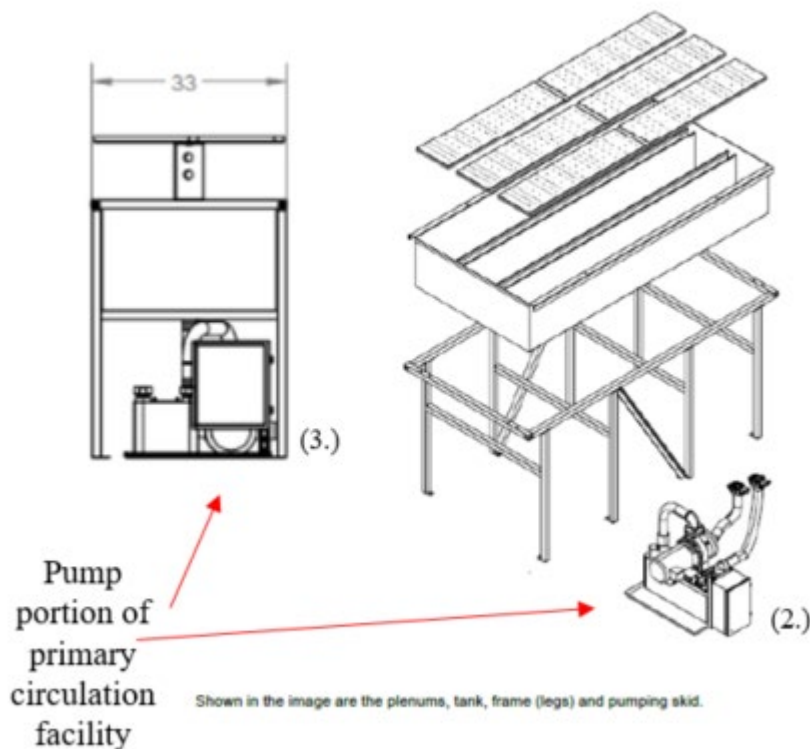
(1.) MIDAS0046259

## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

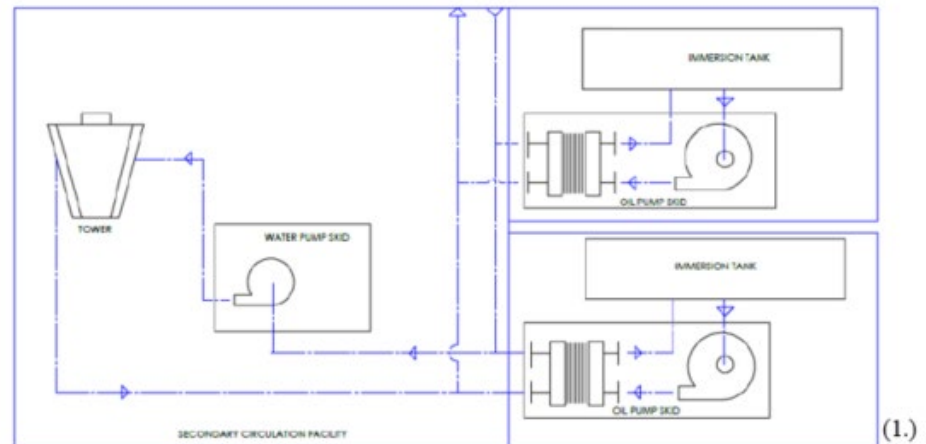
a primary circulation facility adapted to circulate the dielectric fluid through the tank

11.1 The parts



### Where Found

The Midas Crypto Systems include a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump and associated piping sends the hot dielectric fluid through the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



- (1.) MIDAS0046261.
- (2.) MIDAS0046265.
- (3.) MIDAS0046259.



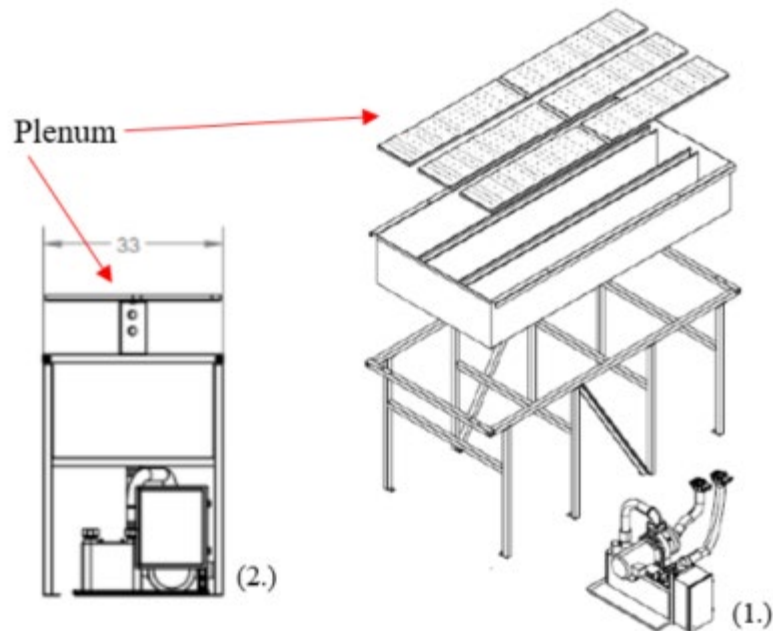
## ‘457 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

11.1 The parts



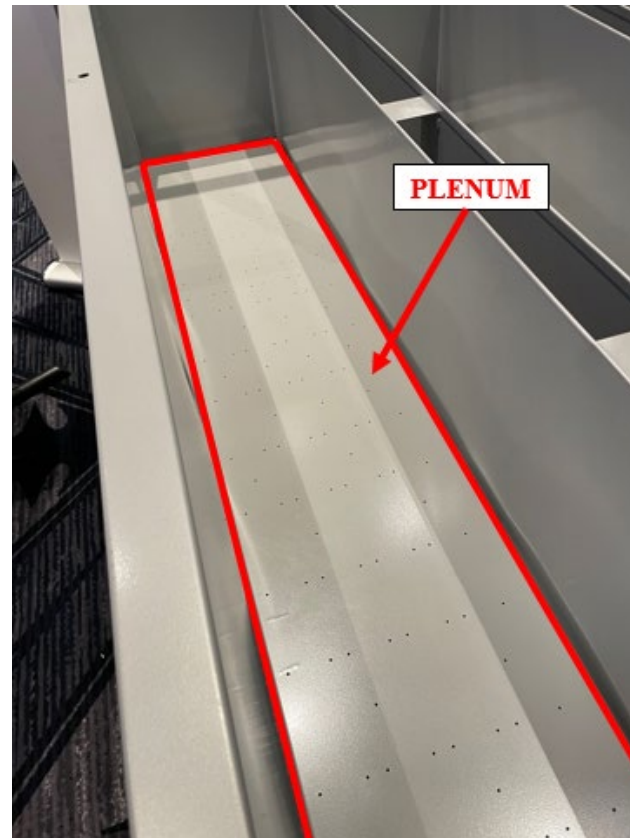
Shown in the image are the plenums, tank, frame (legs) and pumping skid.

(1.) MIDAS0046265.

(2.) MIDAS0046259.

### Where Found

The Midas Crypto Systems include a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



## **‘457 Claim 6 Chart of Midas Crypto Systems**

### **Claim Limitation**

a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

### **Where Found**

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary (and secondary fluid circulation facilities) as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.

## ‘457 Dependent Claim 7 Chart of Midas Crypto Systems

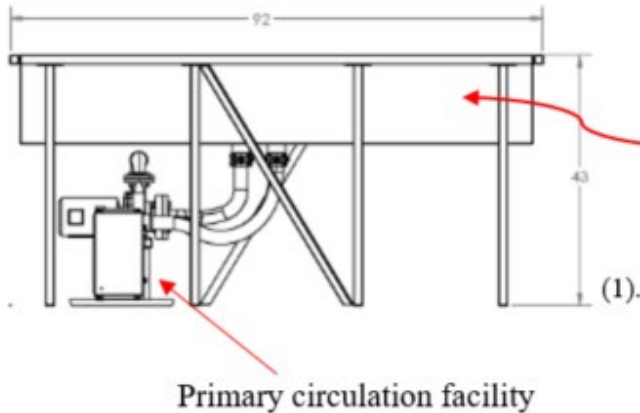
### Claim Limitation

The module of claim 6 wherein the tank and primary circulation facility comprise a highly-integrated module.

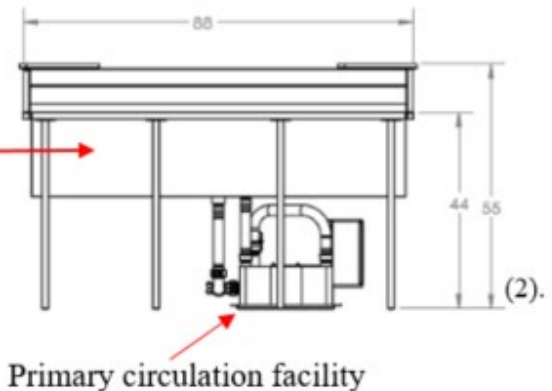
### Where Found

The module wherein the tank and primary circulation facility comprise a highly-integrated module, i.e., the tank, plenum, and circulation pump are tightly co-located.

5.2 Midas Simple Crypto 3 Slot System



5.1 Midas Simple Crypto 2 Slot System



(1.) MIDAS0046259.  
(2.) *Id.*

## **‘457 Claim 10 Chart of Midas Crypto Systems**

### **Claim Limitation**

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### **Where Found**

The Midas Crypto Systems include a control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location, e.g., the various sensors located on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the sensors on the water skid(s), the sensors associated with the cooling tower(s), including hardware and/or transmission/interface wiring or other means of communication for the sensors and various controllers, and optionally including one or more centralized computer systems specified or provided by a customer.

## ‘457 Claim 11 Chart of Midas Crypto Systems

### Claim Limitation

To the extent that the preamble may be limiting:

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

### Where Found

The Midas Crypto Systems is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, *‘457 Patent*, col. 3, lines 45-46, *e.g.* Cryptocurrency Miners

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.

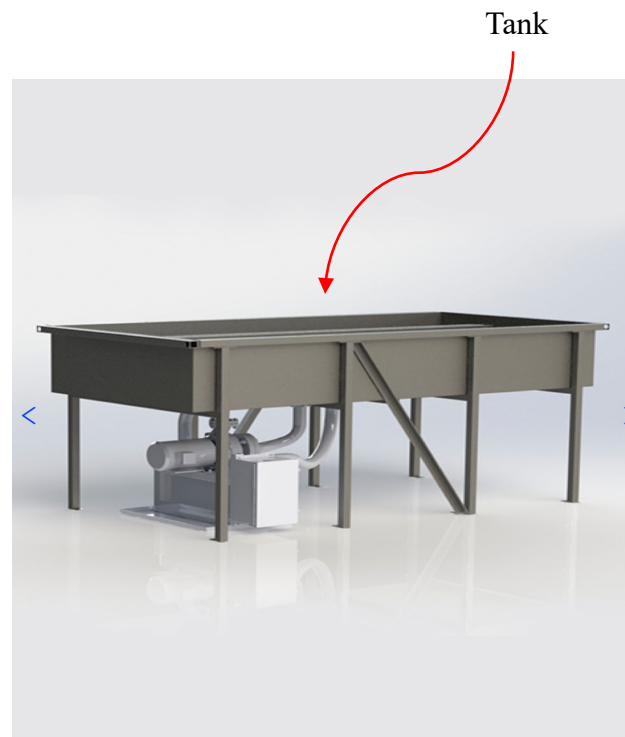
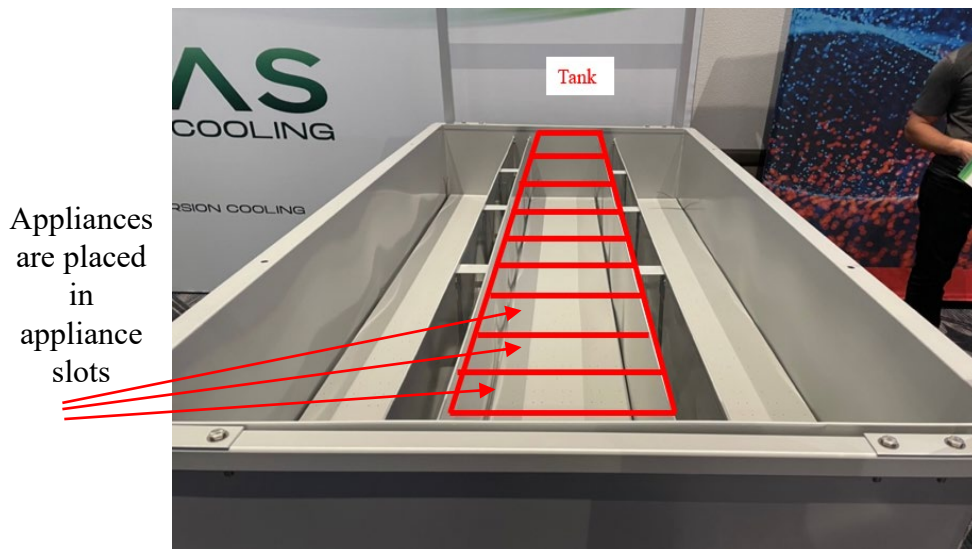
## ‘457 Claim 11 Chart of Midas Crypto Systems

### Claim Limitation

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Where Found

The Midas Crypto Systems include a tank. Each tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances, i.e., crypto miners.



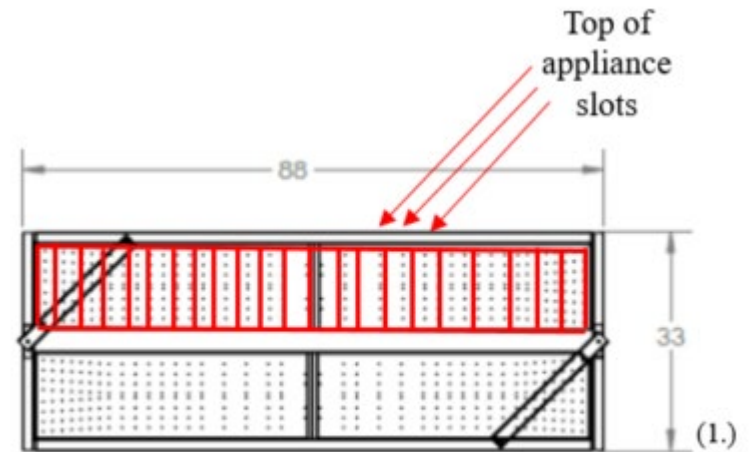
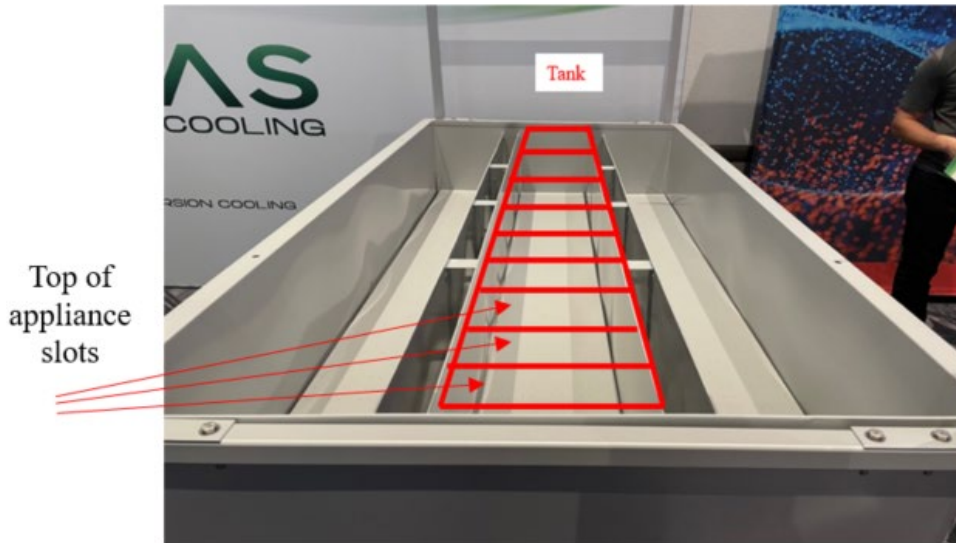
## ‘457 Claim 11 Chart of Midas Crypto Systems

### Claim Limitation

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Where Found

The Midas Crypto Systems include appliance slots, *e.g.*, each slot receiving a respective appliance, *i.e.*, crypto miners, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



(1.) MIDAS0046259



## ‘457 Claim 11 Chart of Midas Crypto Systems

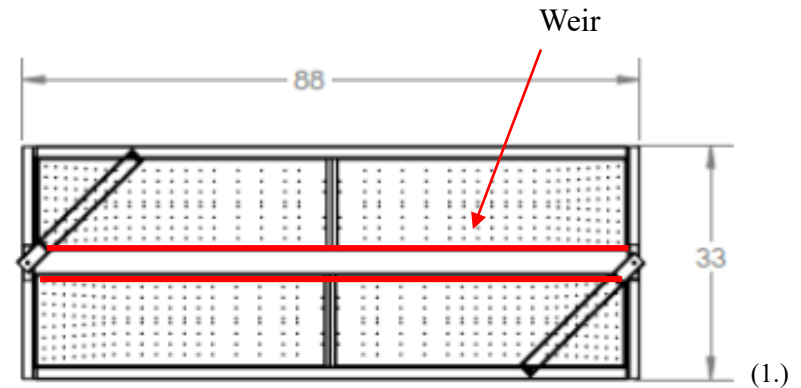
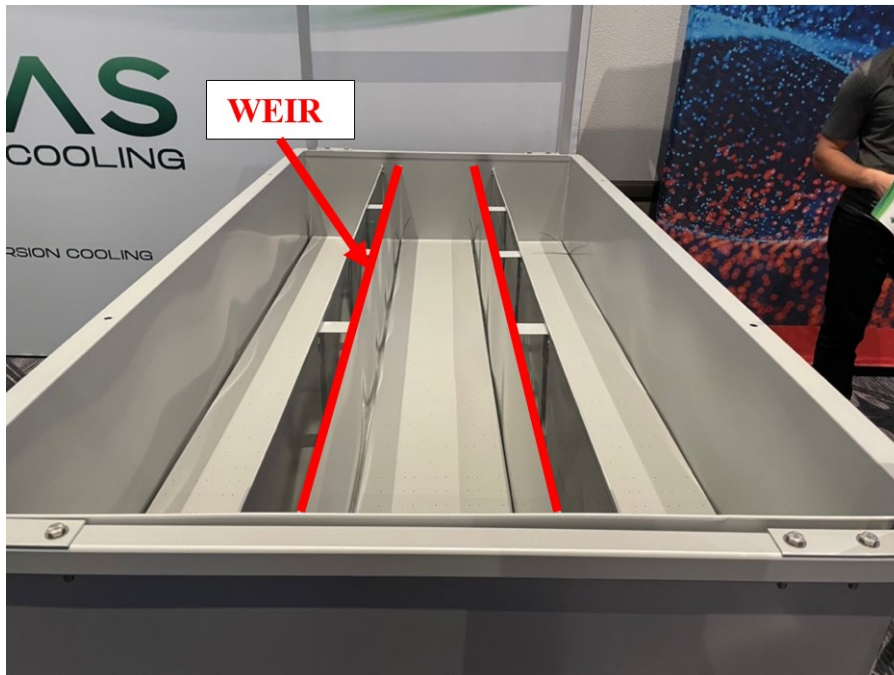
### Claim Limitation

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot;

### Where Found

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



(1.) MIDAS0046259.



## '446 Claim 11 Chart of Midas Crypto Systems

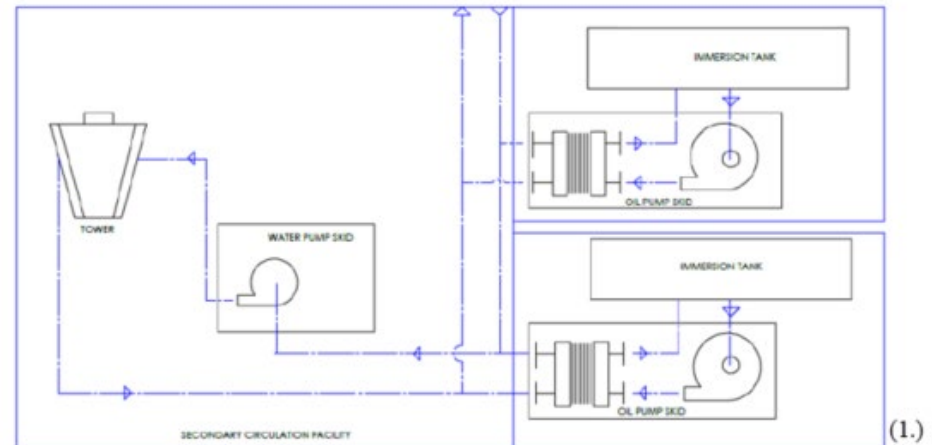
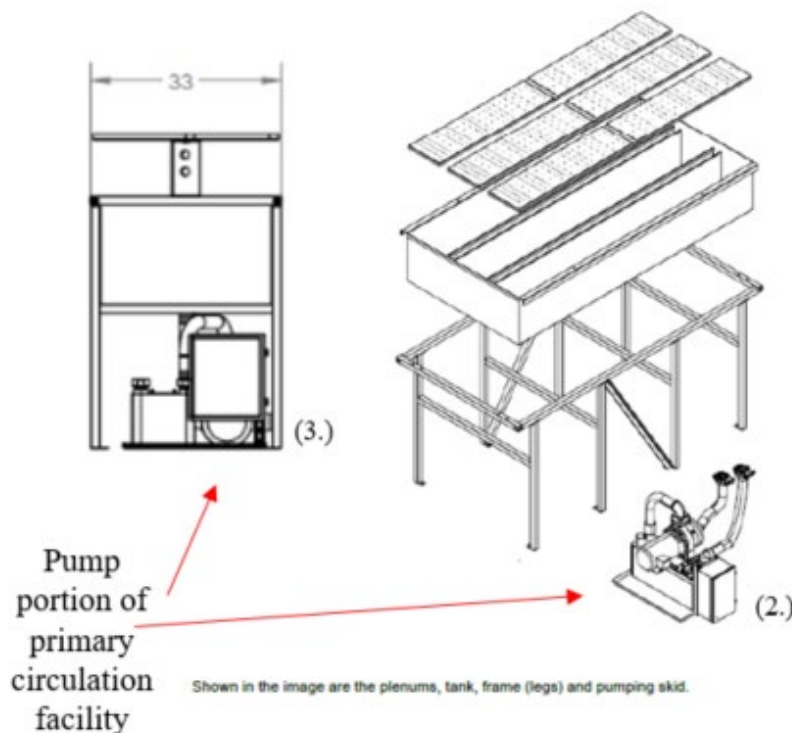
### Claim Limitation

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Where Found

The Midas Crypto Systems include a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump and associated piping sends the hot dielectric fluid through the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.

11.1 The parts



(1.) MIDAS0046261.

(2.) MIDAS0046265.

(3.) MIDAS0046259.

## '457 Claim 11 Chart of Midas Crypto Systems

### Claim Limitation

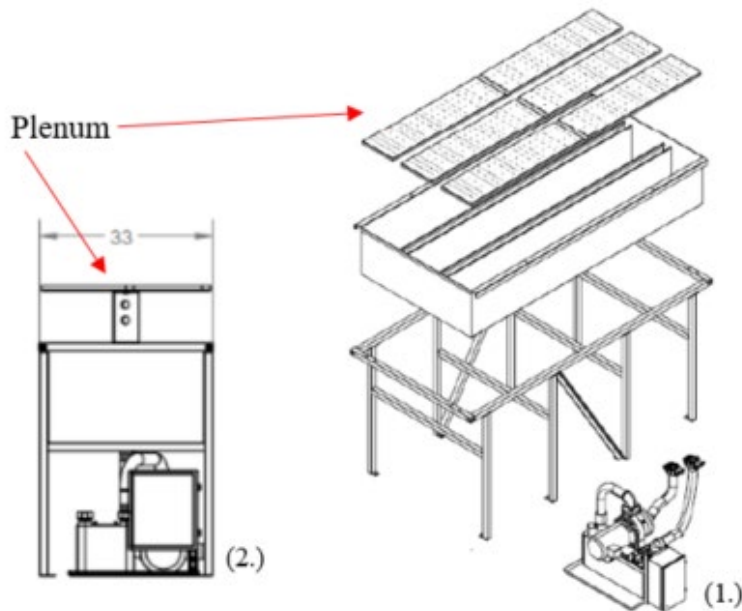
comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot; and

### Where Found

The Midas Crypto Systems include a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.

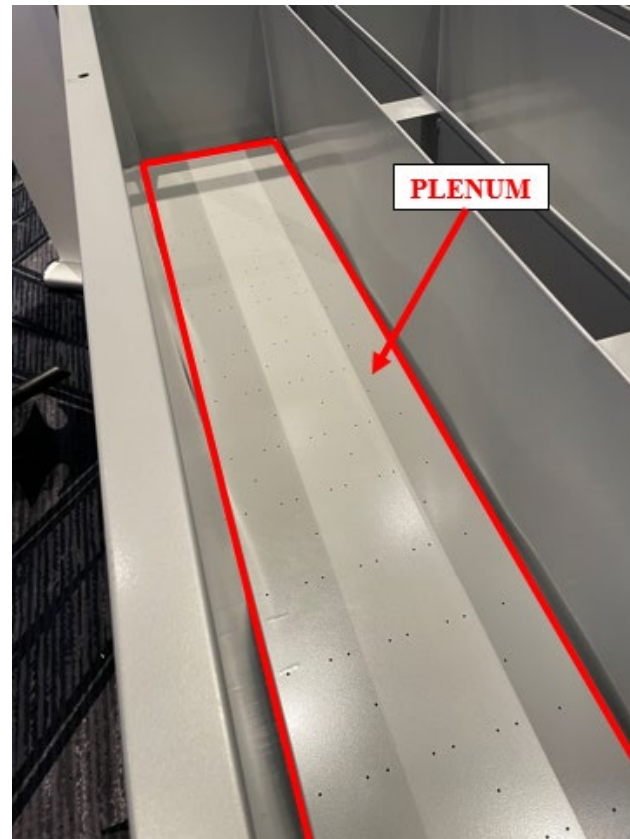
11.1 The parts



Shown in the image are the plenums, tank, frame (legs) and pumping skid.

(1.) MIDAS0046265.

(2.) MIDAS0046259.



## **‘457 Claim 11 Chart of Midas Crypto Systems**

### **Claim Limitation**

a control facility adapted to control the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

### **Where Found**

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary (and secondary fluid circulation facilities) as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.

## **‘457 Claim 14 Chart of Midas Crypto Systems**

### **Claim Limitation**

The module of claim 11 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### **Where Found**

The Midas Crypto Systems include a control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location, e.g., the various sensors located on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the sensors on the water skid(s), the sensors associated with the cooling tower(s), including hardware and/or transmission/interface wiring or other means of communication for the sensors and various controllers, and optionally including one or more centralized computer systems specified or provided by a customer.

## ‘457 Claim 15 Chart of Midas Crypto Systems

### Claim Limitation

An appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

### Where Found

The Midas Crypto Systems includes an appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.

See charted claims 11–14 in reference to a tank module according to any one of the preceding claims 11 through 14.

## ‘457 Claim 16 Chart of Midas Crypto Systems

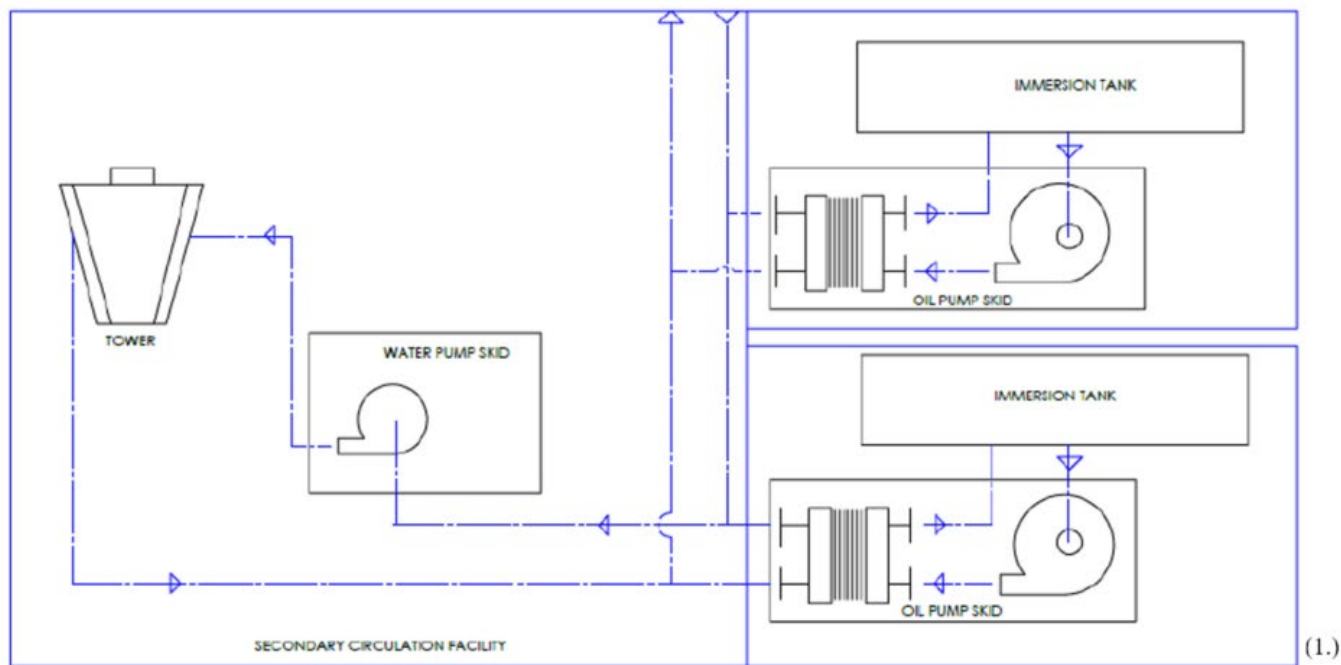
### Claim Limitation

An appliance immersion cooling system according to claim 15, further comprising:

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.

### Where Found

The Midas Crypto Systems include a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted, e.g., water pump skid and cooling tower and associated pumps, heat exchangers, etc., that remove heat from the hot dielectric fluid and dissipate heat to the environment.



(1.) MIDAS0046261.

## ‘446 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

To the extent that the preamble may be limiting:

An appliance immersion cooling system comprising:

### Where Found

The Midas Crypto Systems is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, *‘446 Patent*, col. 3, lines 47-48, *e.g.* Cryptocurrency Miners

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.

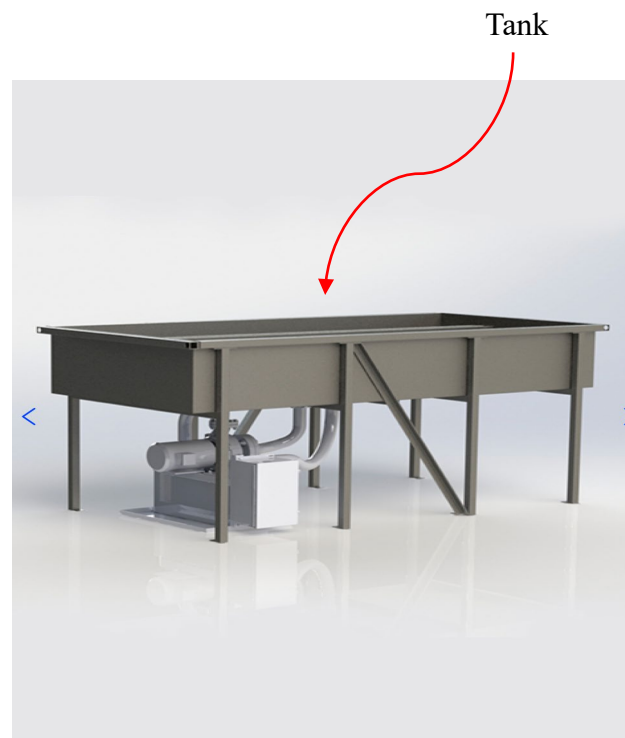
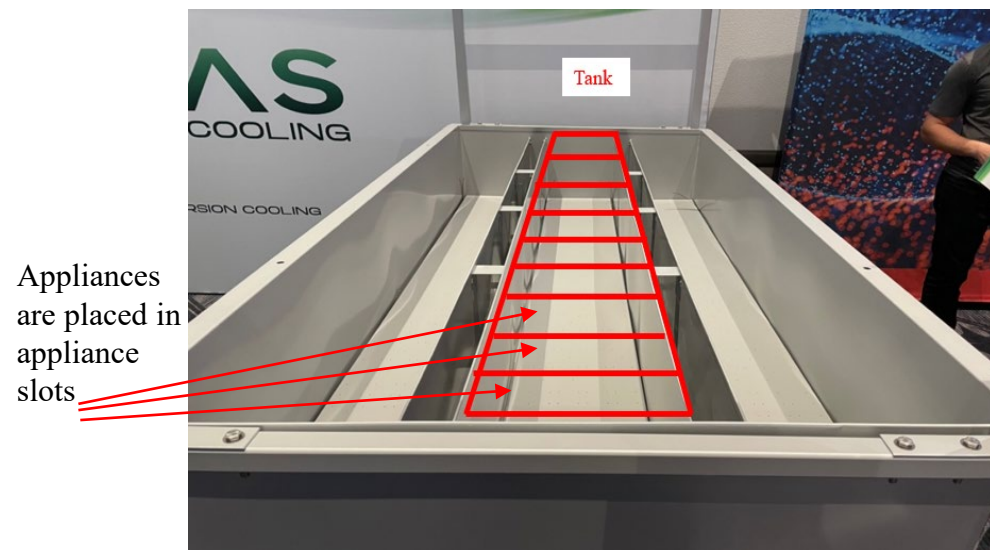
## ‘446 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Where Found

The Midas Crypto Systems include a tank. Each tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances, i.e., crypto miners.





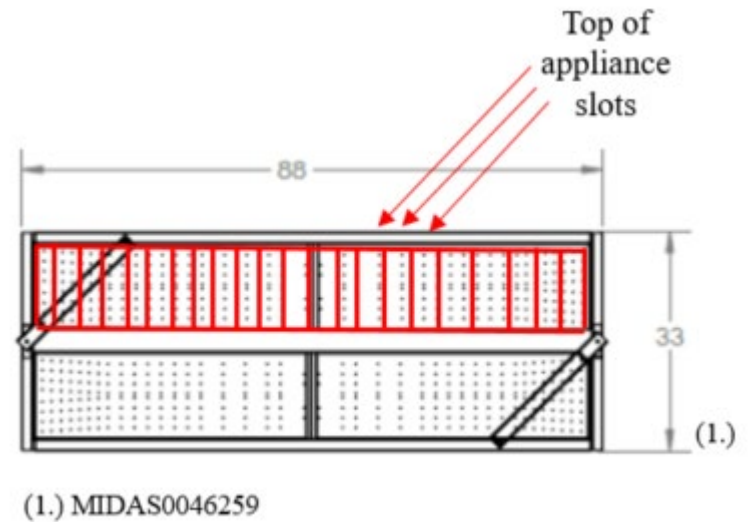
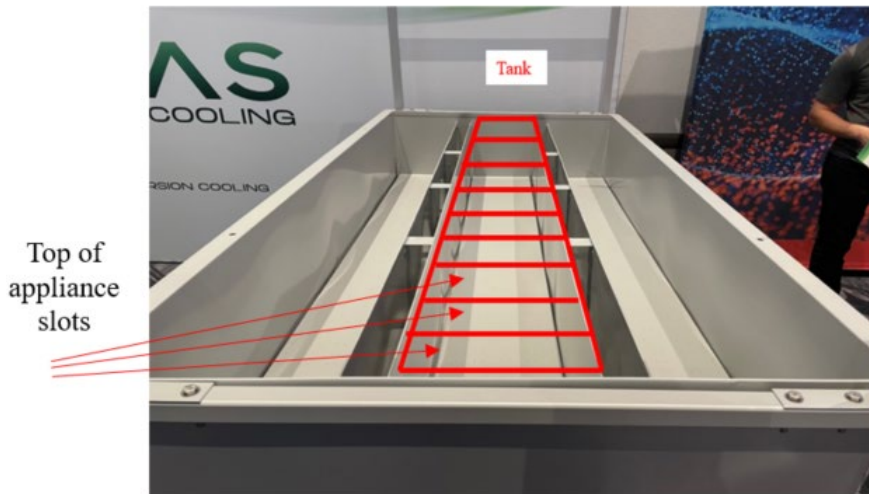
## ‘446 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Where Found

The Midas Crypto Systems include appliance slots, *e.g.*, each slot receiving a respective appliance, *i.e.*, crypto miners, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



## ‘446 Claim 1 Chart of Midas Crypto Systems

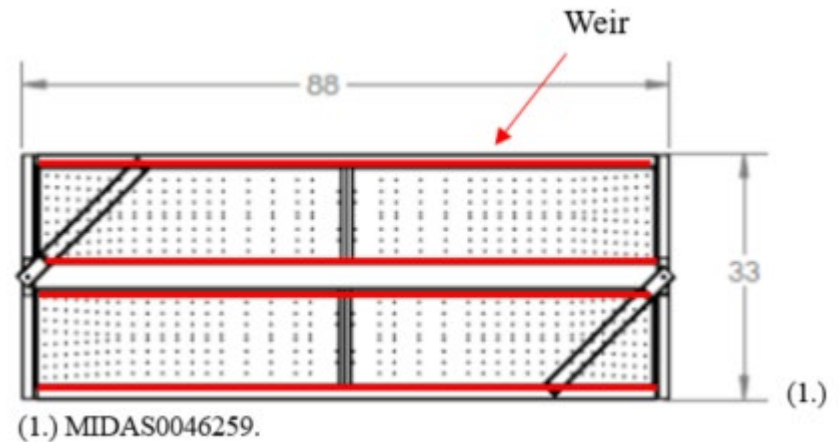
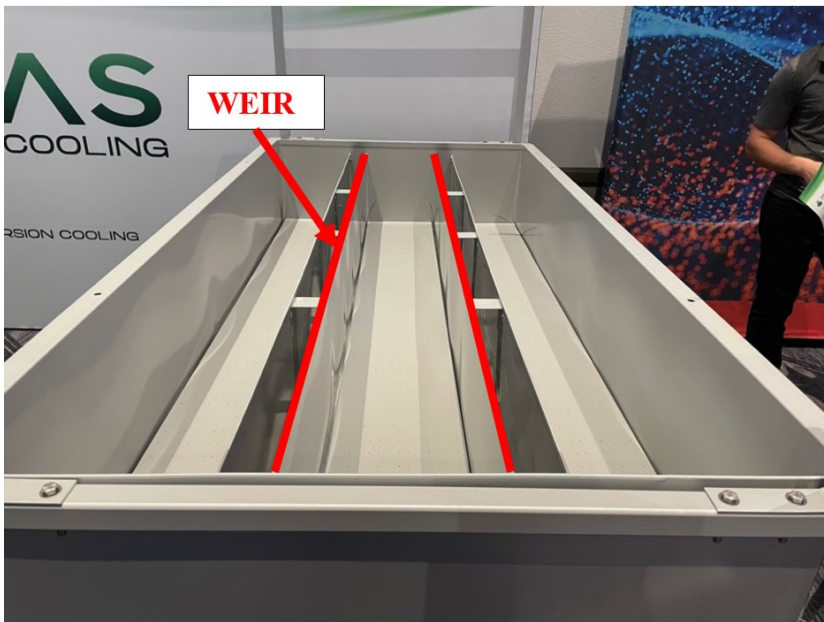
### Claim Limitation

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Where Found

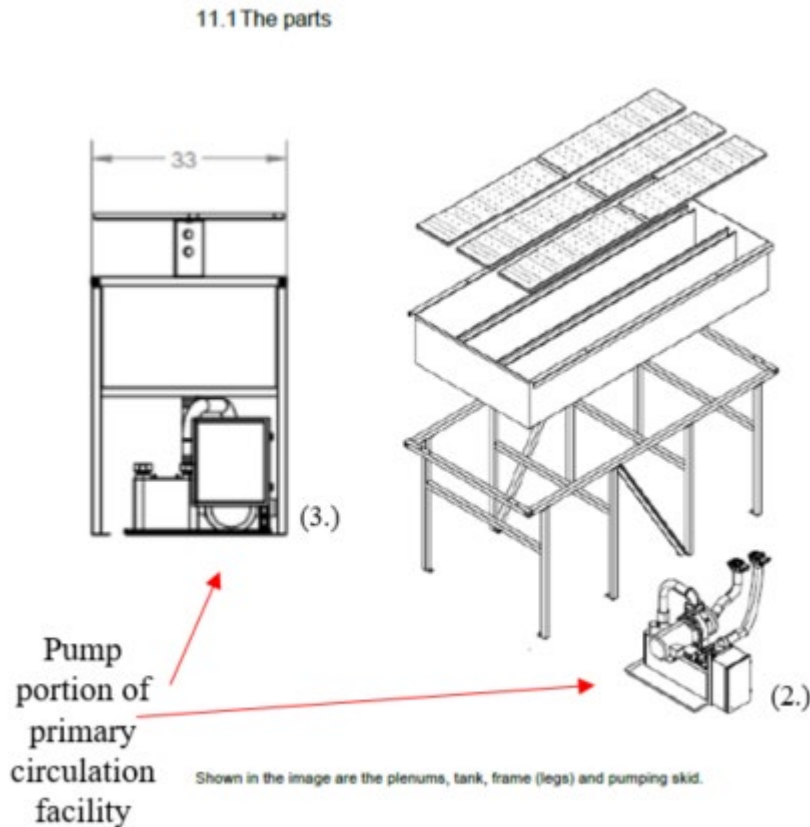
The Midas Crypto Systems include a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



## '446 Claim 1 Chart of Midas Crypto Systems

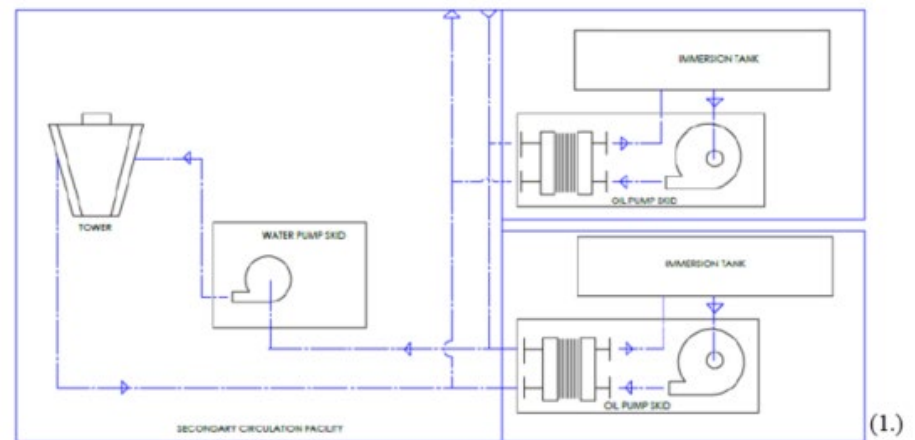
### Claim Limitation

a primary circulation facility adapted to circulate the dielectric fluid through the tank,



### Where Found

The Midas Crypto Systems include a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump and associated piping sends the hot dielectric fluid through the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



- (1.) MIDAS0046261.
- (2.) MIDAS0046265.
- (3.) MIDAS0046259.

## ‘446 Claim 1 Chart of Midas Crypto Systems

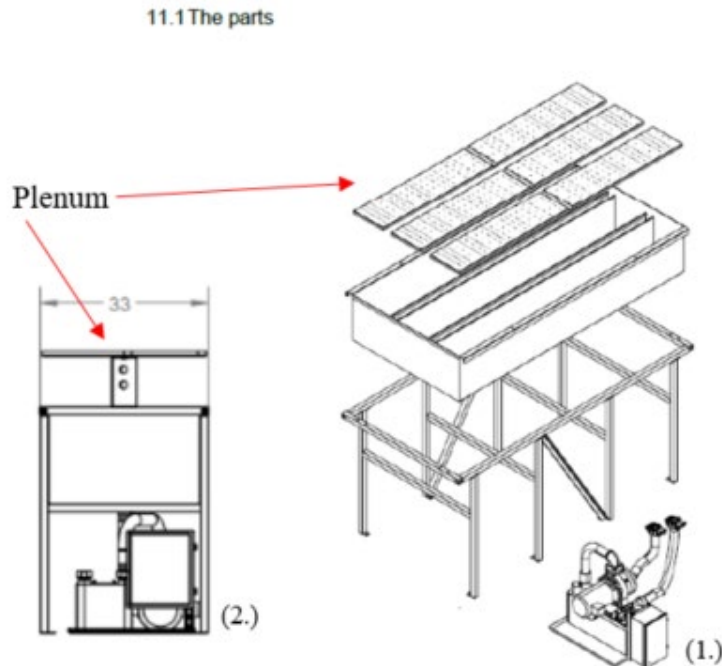
### Claim Limitation

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Where Found

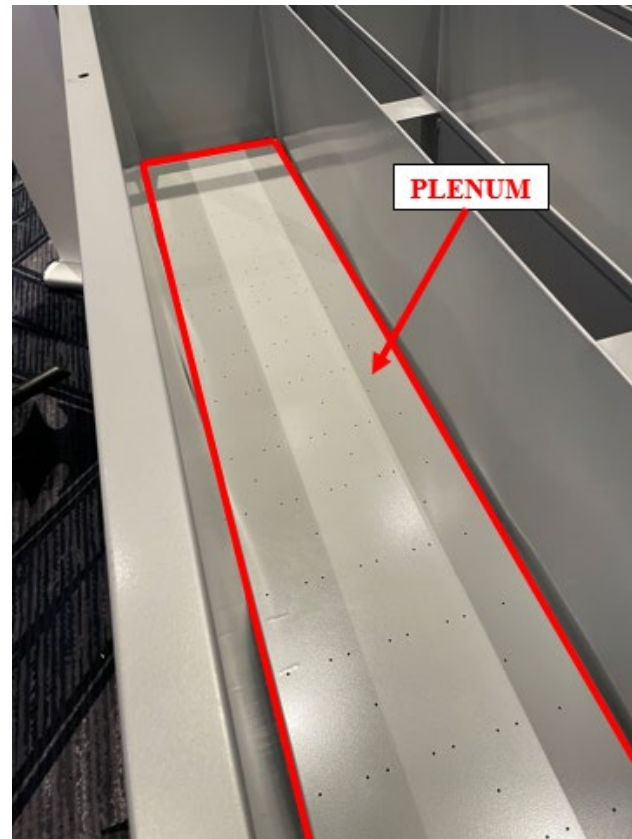
The Midas Crypto Systems include a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



Shown in the image are the plenums, tank, frame (legs) and pumping skid.

(1.) MIDAS0046265.

(2.) MIDAS0046259.



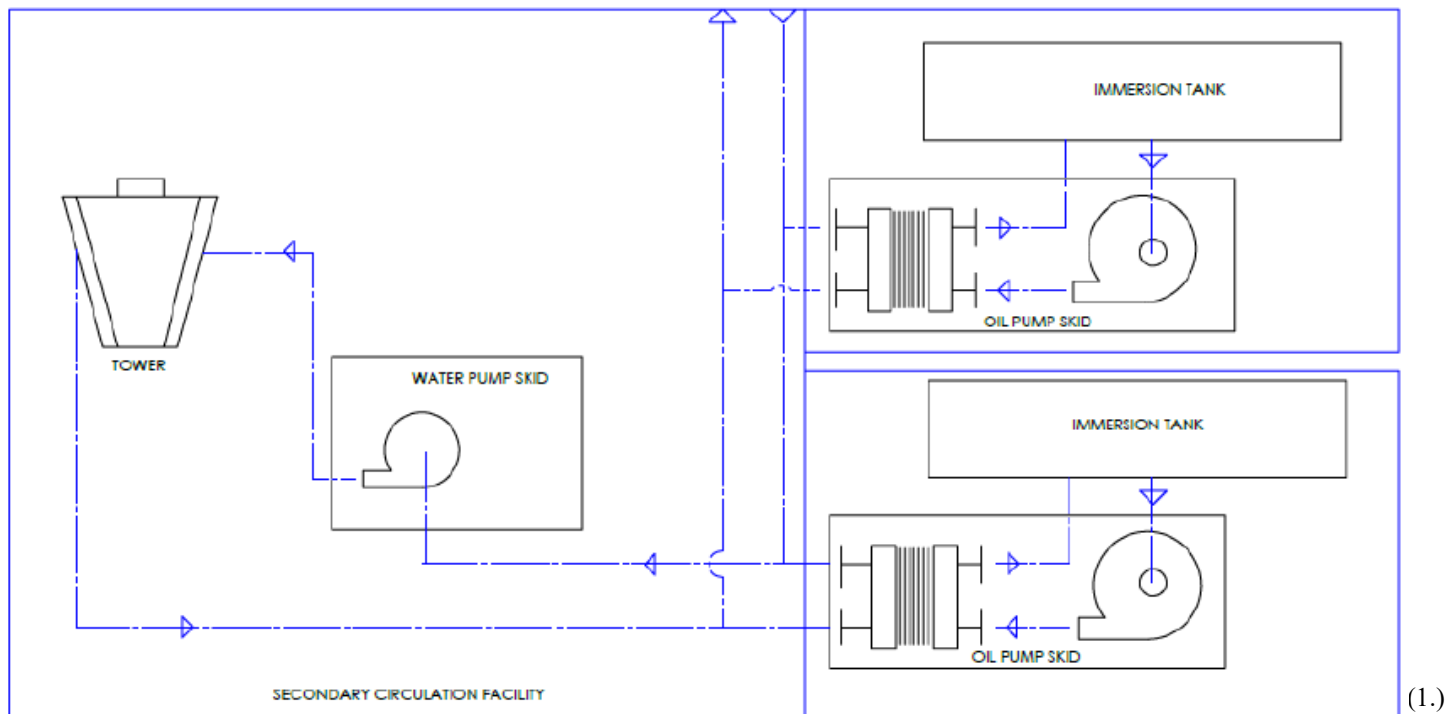
## ‘446 Claim 1 Chart of Midas Crypto Systems

### Claim Limitation

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Where Found

The Midas Crypto Systems include a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted, e.g., water pump skid and cooling tower and associated pumps, heat exchangers, etc., that remove heat from the hot dielectric fluid and dissipate heat to the environment.



(1.) MIDAS0046261.

## **‘446 Claim 1 Chart of Midas Crypto Systems**

### **Claim Limitation**

a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

### **Where Found**

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.

## ‘446 Dependent Claim 2 Chart of Midas Crypto Systems

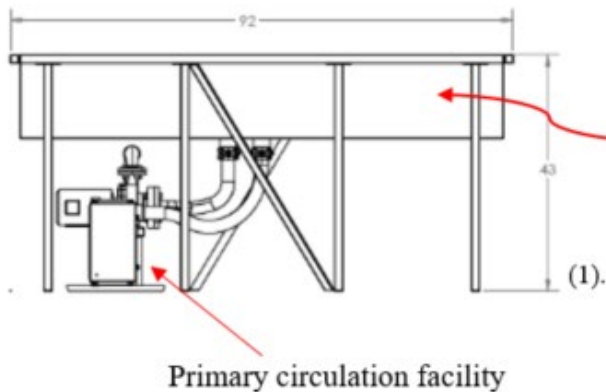
### Claim Limitation

The system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module.

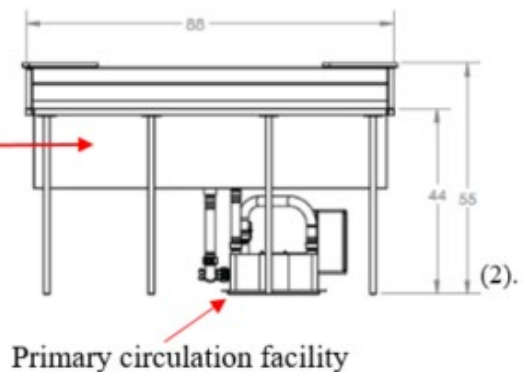
### Where Found

The Midas Crypto Systems include the system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module, i.e., the tank, plenum, and circulation pump are tightly co-located.

5.2 Midas Simple Crypto 3 Slot System



5.1 Midas Simple Crypto 2 Slot System



(1.) MIDAS0046259.  
(2.) *Id.*



## ‘446 Claim 5 Chart of Midas Crypto Systems

### Claim Limitation

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Where Found

The Midas Crypto Systems include a control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location, e.g., the various sensors located on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the sensors on the water skid(s), the sensors associated with the cooling tower(s), including hardware and/or transmission/interface wiring or other means of communication for the sensors and various controllers, and optionally including one or more centralized computer systems specified or provided by a customer.



## ‘446 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

To the extent that the preamble may be limiting:

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

### Where Found

The Midas Crypto Systems are a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, ‘446 Patent, col. 3, lines 47-48, *e.g.* Cryptocurrency Miners

## 1 The Midas Crypto System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment, and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and allows overclocking mining equipment.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) MIDAS0046255.

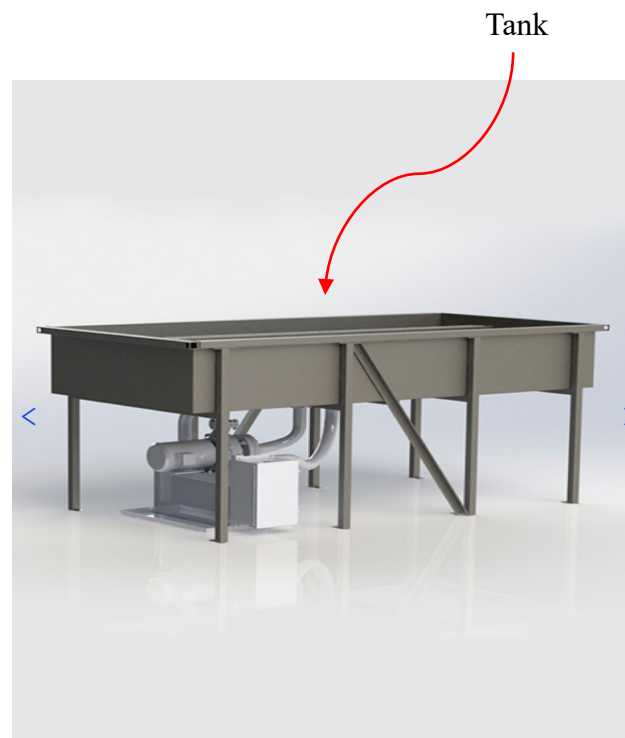
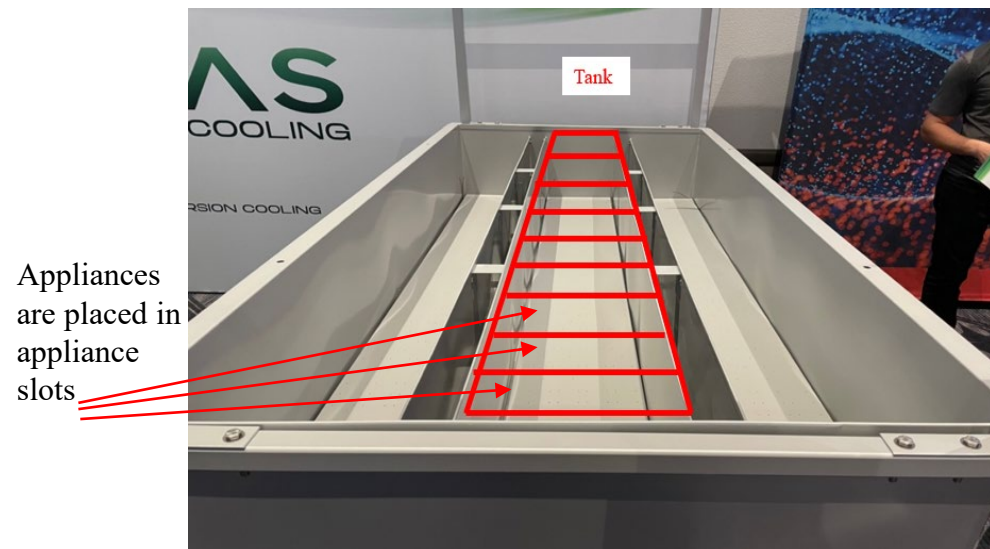
## ‘446 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Where Found

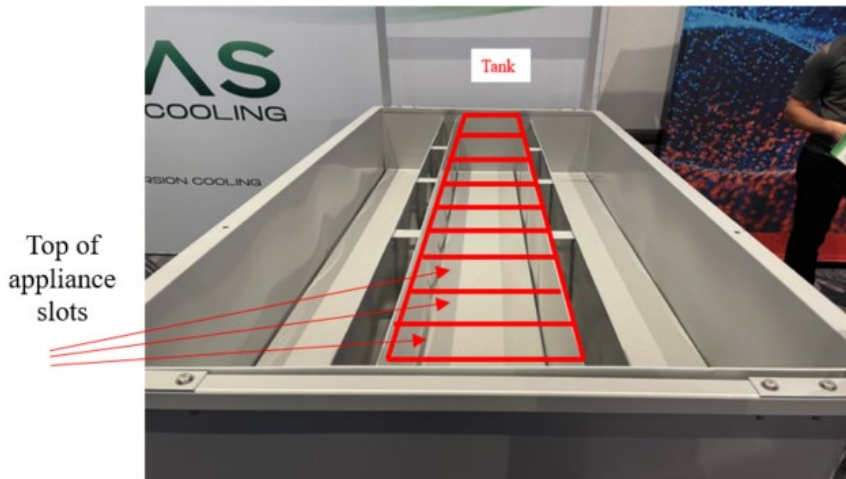
The Midas Crypto Systems include a tank. Each tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances, i.e., crypto miners.



## ‘446 Claim 6 Chart of Midas Crypto Systems

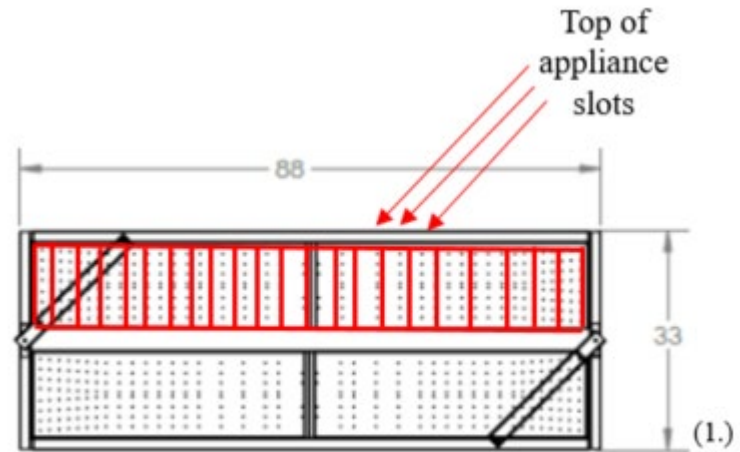
### Claim Limitation

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Where Found

The Midas Crypto Systems include appliance slots, *e.g.*, each slot receiving a respective appliance, *i.e.*, crypto miners, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



(1.) MIDAS0046259

## ‘457 Claim 1 Chart of Midas Crypto Systems

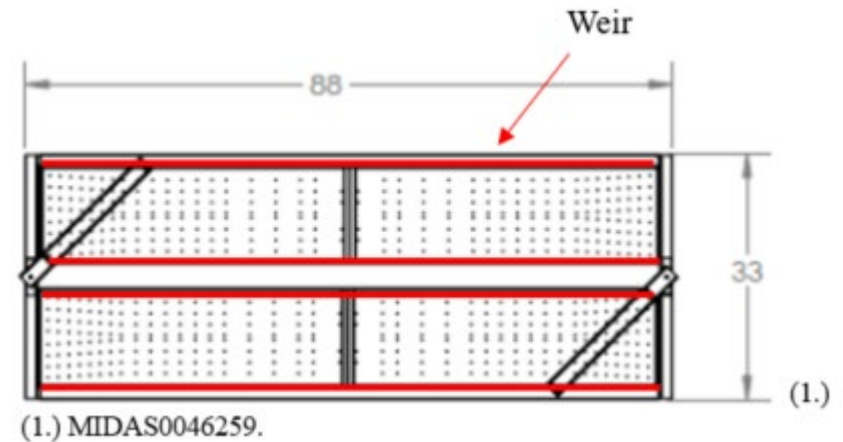
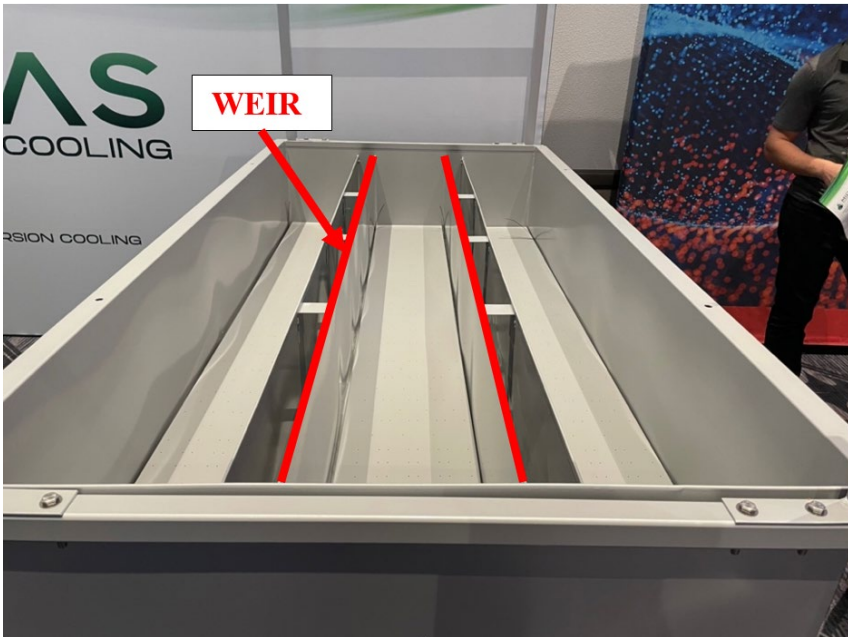
### Claim Limitation

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Where Found

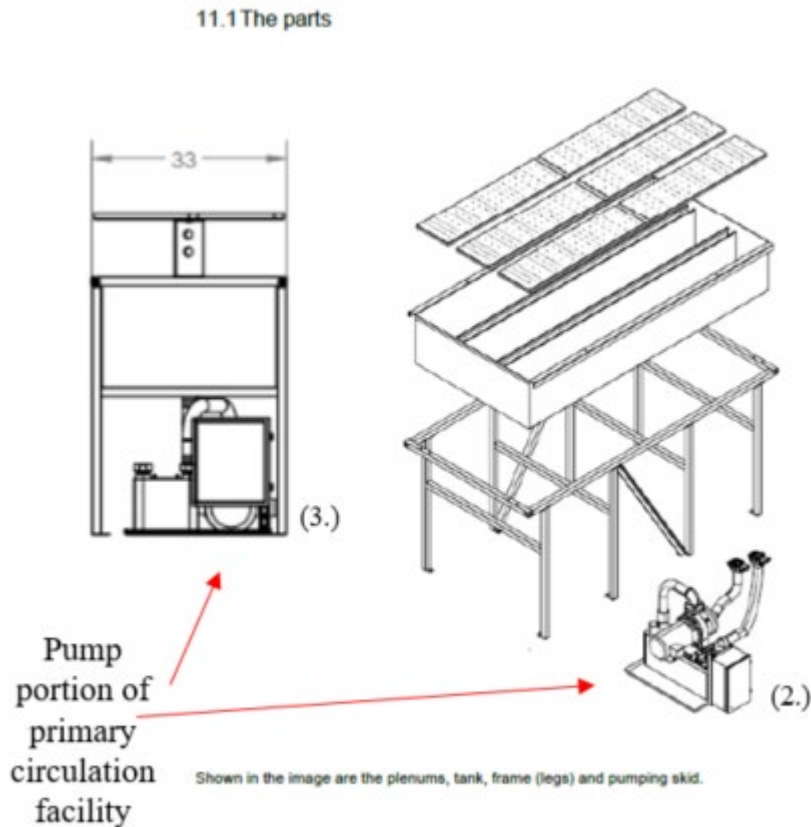
The Midas Crypto Systems include a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



## ‘446 Claim 6 Chart of Midas Crypto Systems

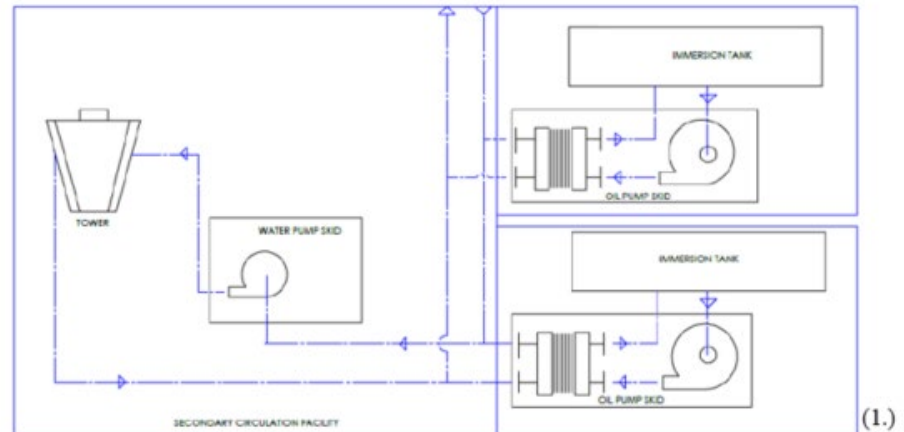
### Claim Limitation

a primary circulation facility adapted to circulate the dielectric fluid through the tank,



### Where Found

The Midas Crypto Systems include a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump and associated piping sends the hot dielectric fluid through the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



- (1.) MIDAS0046261.
- (2.) MIDAS0046265.
- (3.) MIDAS0046259.

## '446 Claim 6 Chart of Midas Crypto Systems

### Claim Limitation

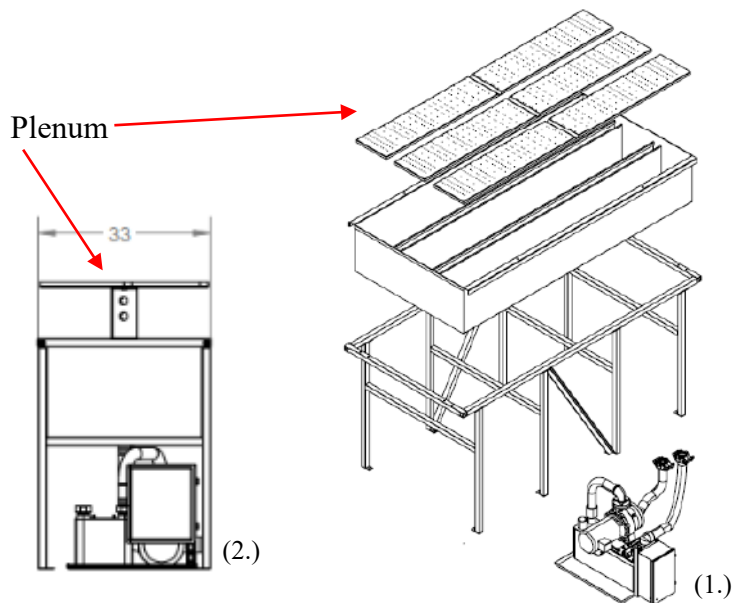
comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot; and

### Where Found

The Midas Crypto Systems include a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.

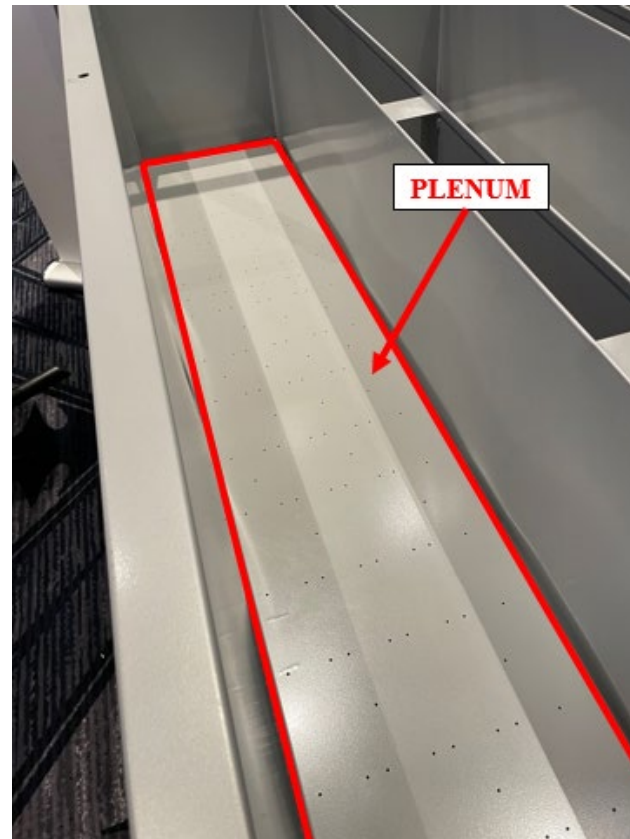
11.1 The parts



Shown in the image are the plenums, tank, frame (legs) and pumping skid.

(1.) MIDAS0046265.

(2.) MIDAS0046259.





## **‘446 Claim 6 Chart of Midas Crypto Systems**

### **Claim Limitation**

a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

### **Where Found**

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary (and secondary fluid circulation facilities) as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.

## '446 Dependent Claim 7 Chart of Midas Crypto Systems

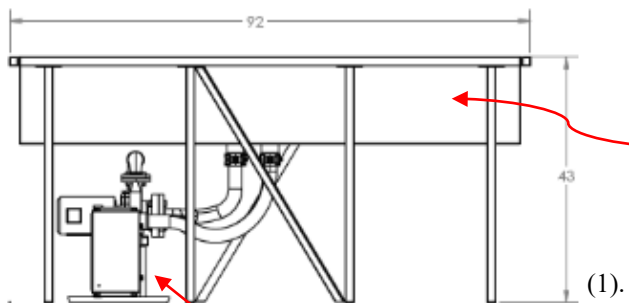
### Claim Limitation

The module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module.

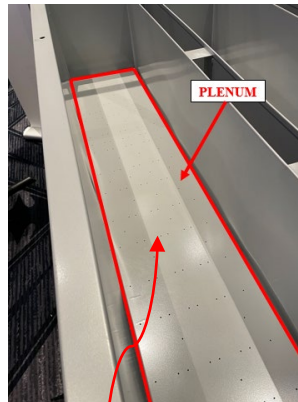
### Where Found

The Midas Crypto Systems include the module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module, i.e., the tank, plenum, and circulation pump are tightly co-located.

5.2 Midas Simple Crypto 3 Slot System

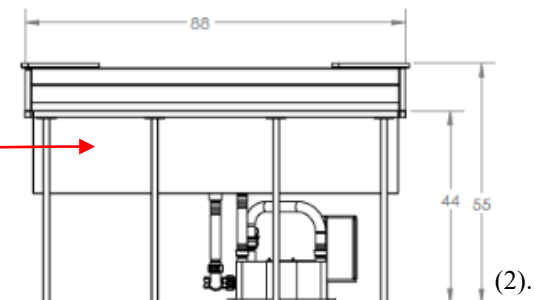


Primary circulation facility



Tank

5.1 Midas Simple Crypto 2 Slot System



Primary circulation facility

(1.) MIDAS0046259.

(2.) *Id.*



## ‘446 Claim 10 Chart of Midas Crypto Systems

### Claim Limitation

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Where Found

The Midas Crypto Systems include a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank, e.g., the control box on the oil skid portion of the SC3TV4-152 or SC2TV4-152 tank systems, the control box on the water skid(s), the control system(s) in the cooling tower, and including the various sensors and switches therein, and in certain installations one or more centralized computer systems specified or provided by a customer.

## **Exhibit B**

## **‘457 and ‘446 Claim Charts of Midas Commercial Embodiment - 50U Tank Systems**

These claim charts are intended to provide notice to defendants of Midas’ contention that its Midas’ commercially-produced 50U Tank Systems, i.e., Midas’ XCIT4-50RM and XCIC4-50C, optionally including a water pump skid and cooling tower, practice the asserted claims, i.e., ‘457 Patent, Claims 1, 2, 5, 6, 7, 10, 11, 14, 15, and 16; and ‘446 Patent, Claims 1, 2, 5, 6, 7, and 10. These claim charts are believed to be applicable to the entirety of Midas’ developmental XCIT and XCIC 50U tanks, for example, the following: XCIT4-50RM, 50U Tank with redundant water-cooling modules; XCIT5-50SM, 50U Tank with single water-cooling module and Manifold; and XCIT5-50RM, 50U Tank with redundant water-cooling modules and Manifold.

Each claim element or limitation of the asserted claims is literally present in the Midas 50U Tank Systems. Any claim element or limitation that is not literally present in the Midas 50U Tank Systems (if any), is present under a doctrine of equivalents.

## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

An appliance immersion cooling system comprising:

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers”, see generally MIDAS0044216-44293.

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## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) MIDAS0044216-44293

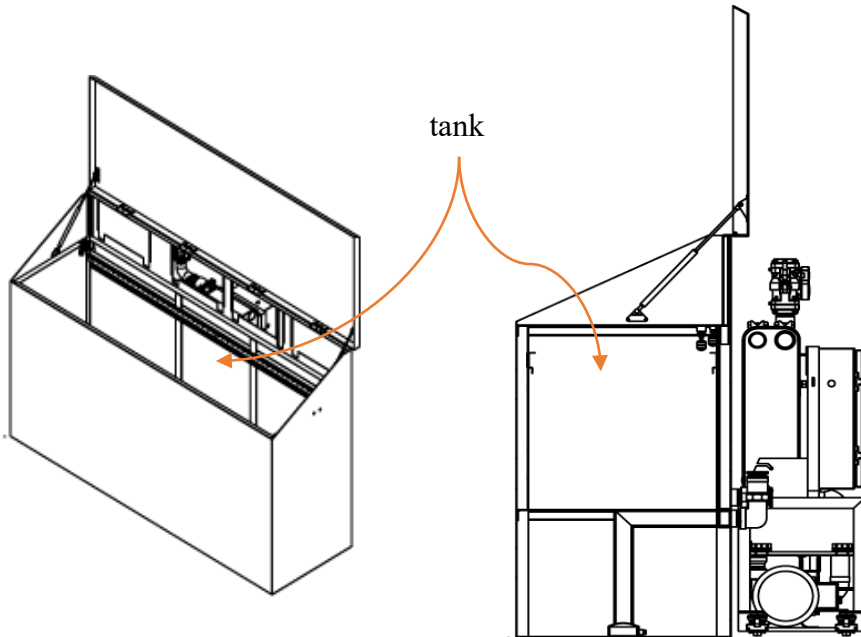
## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



(Perspective view)

(Section view)

appliances



## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



appliance slots

## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

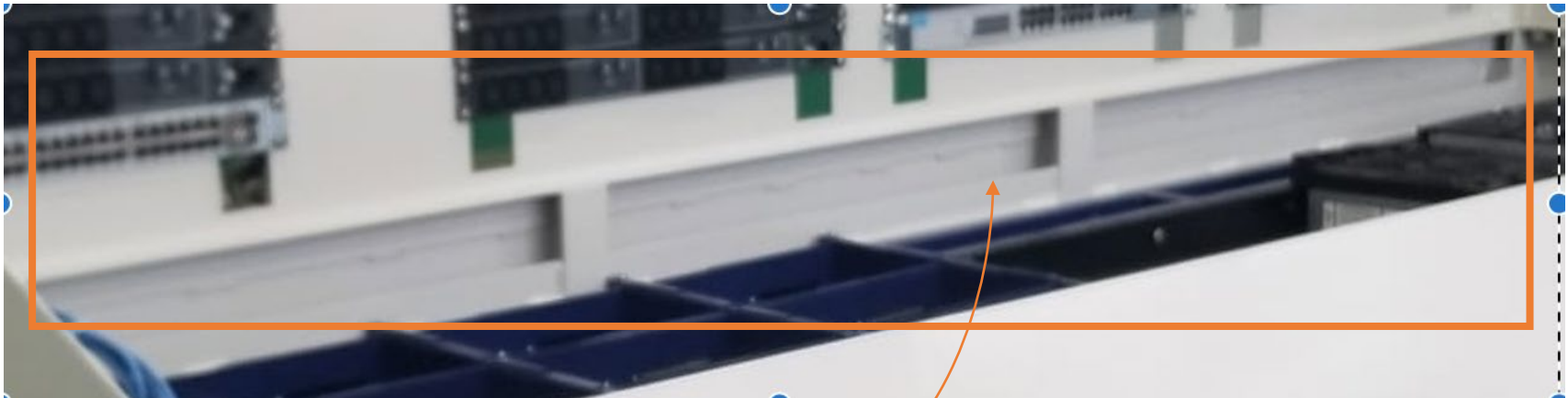
### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



the weir

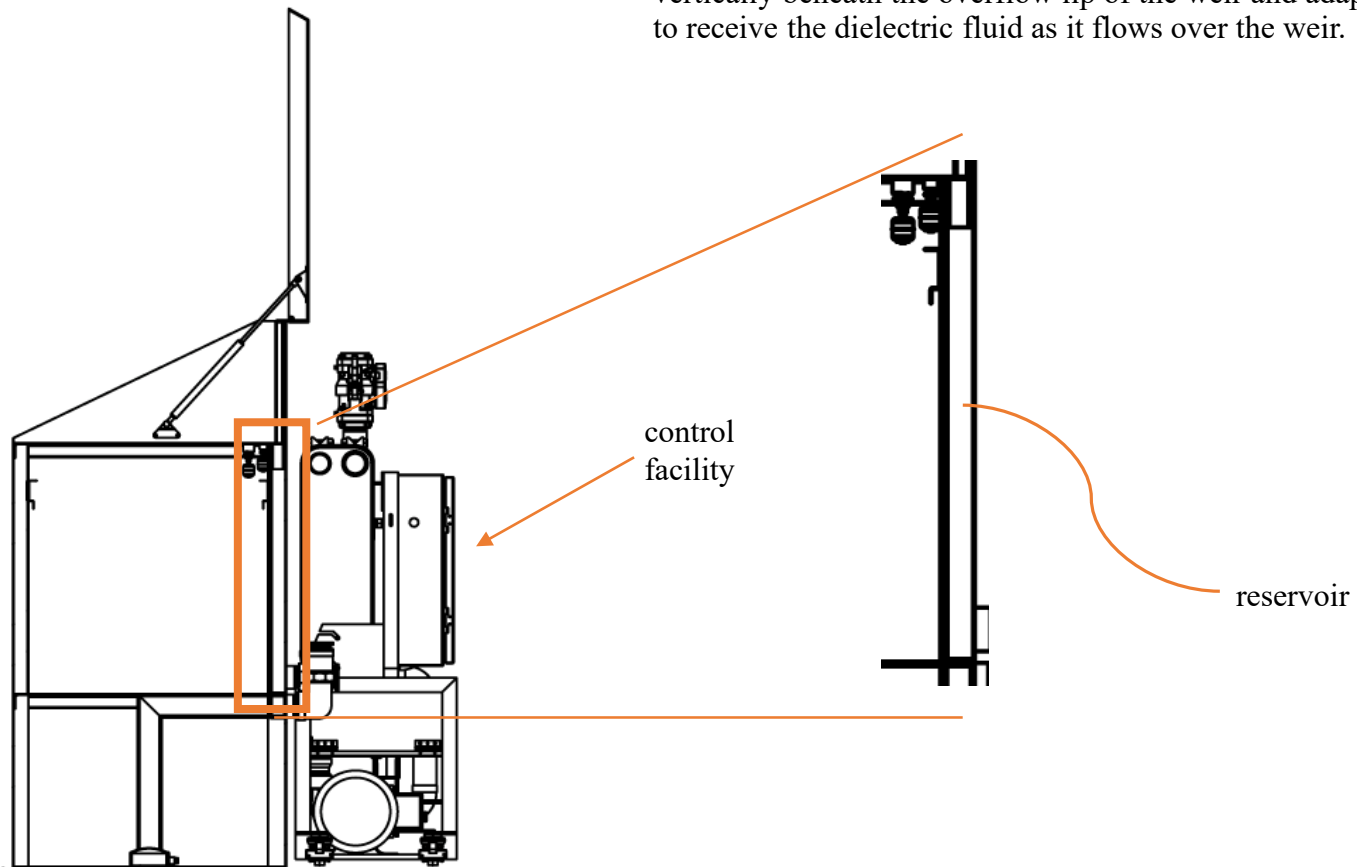
## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.





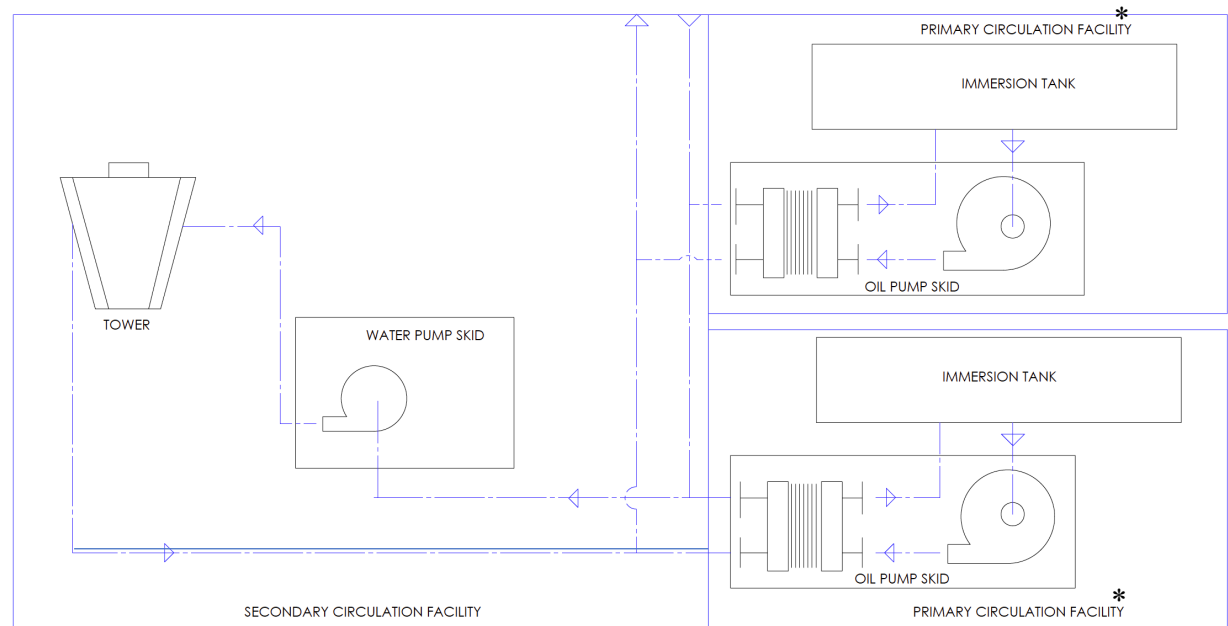
## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

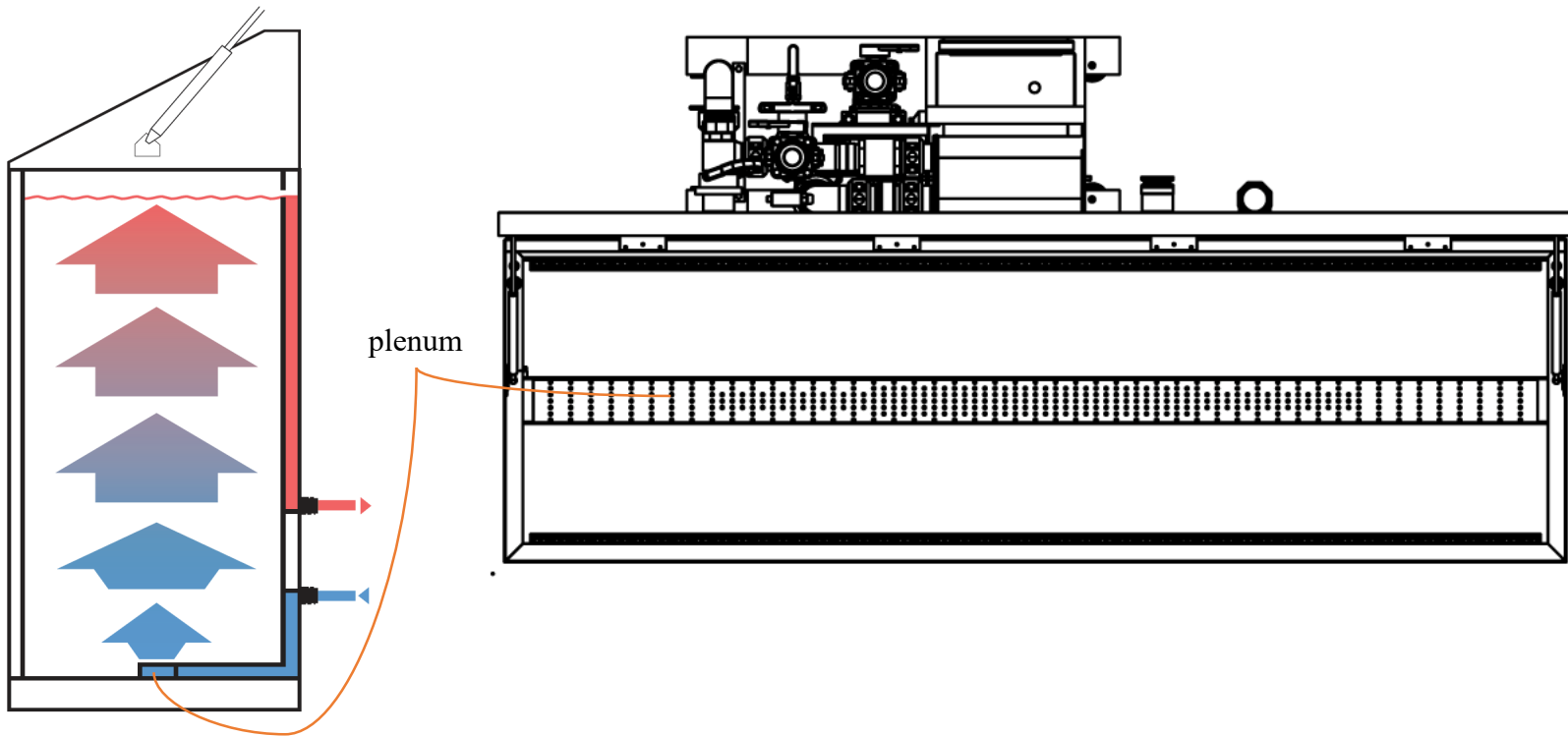
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



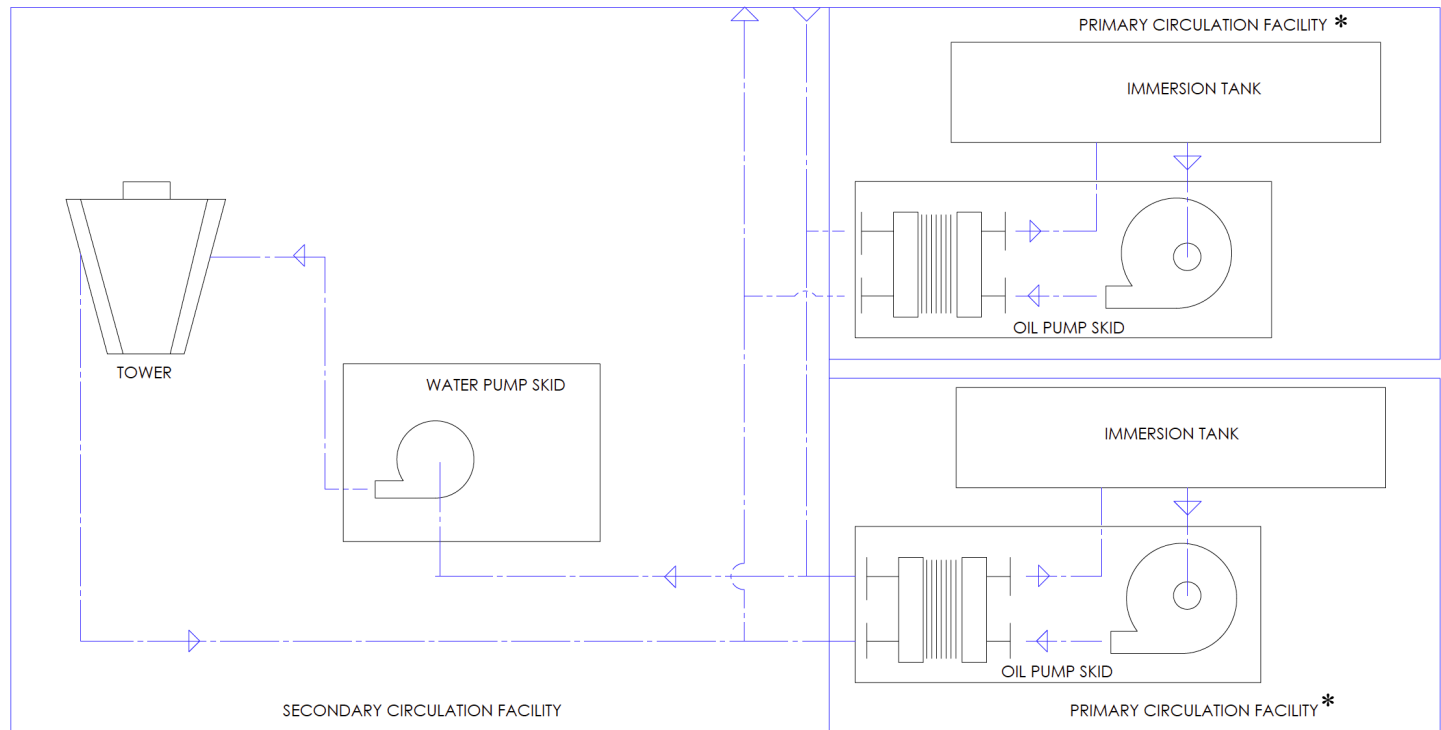
## ‘457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

# '457 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

## Asserted Claim Elements

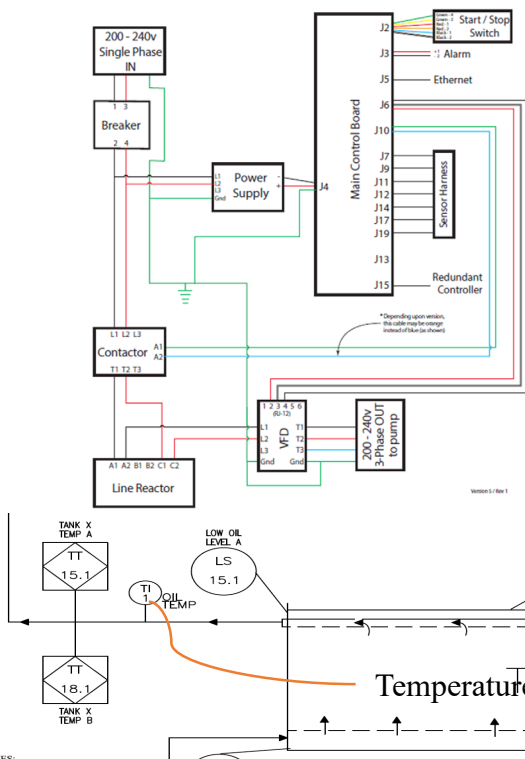
a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank. *See*, e.g., tank rendering on p. 11.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

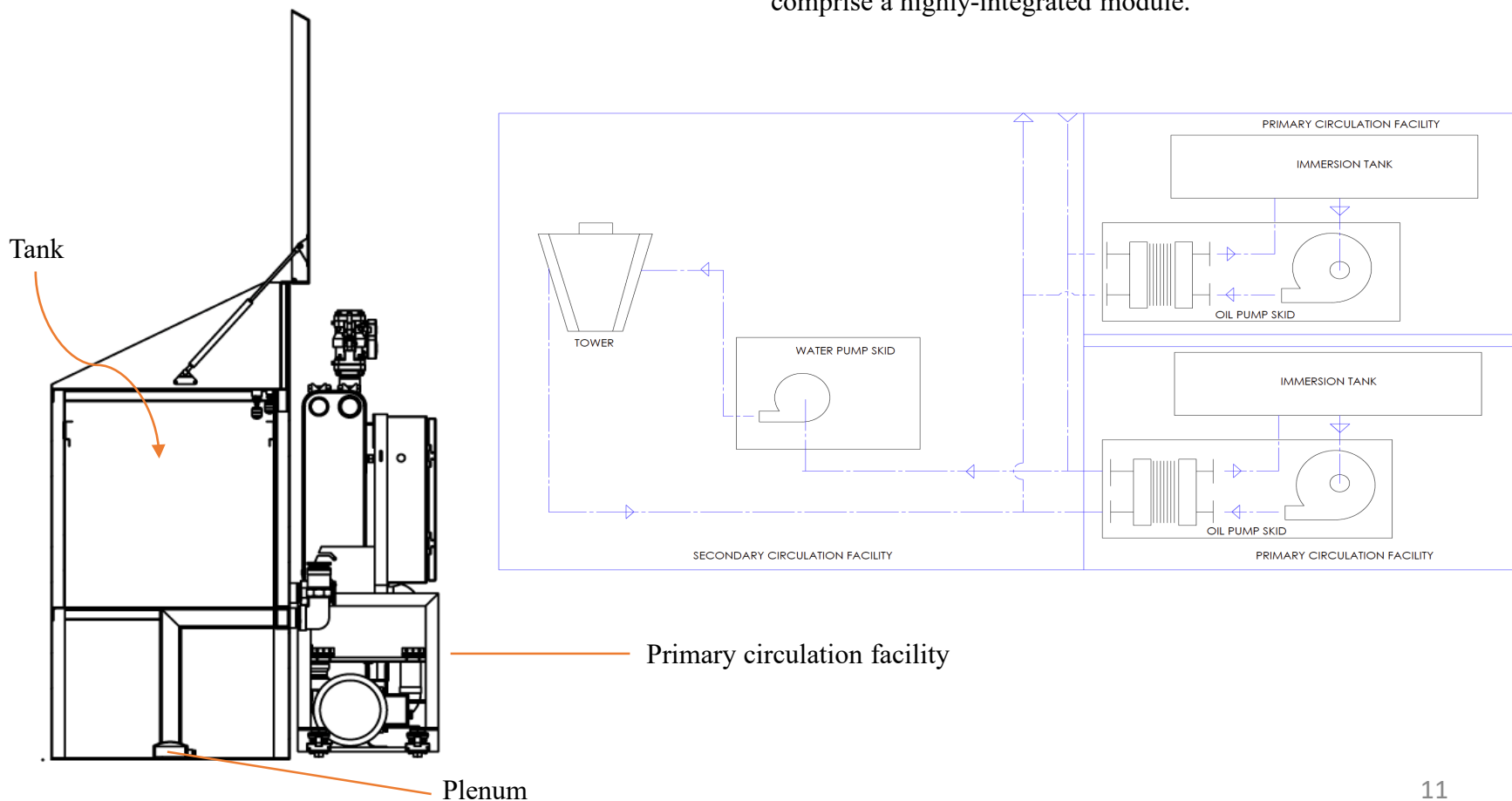
## ‘457 Dependent Claim 2 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The system of claim 1 wherein the tank and primary circulation facility comprise a highly-integrated module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the system of claim 1 wherein the tank and primary circulation facility comprise a highly-integrated module.



# '457 Claim 5 Chart of Midas Commercial Embodiment - 50U Tank

## Asserted Claim Elements

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

### 4 Web Interface

#### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.”  
*See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

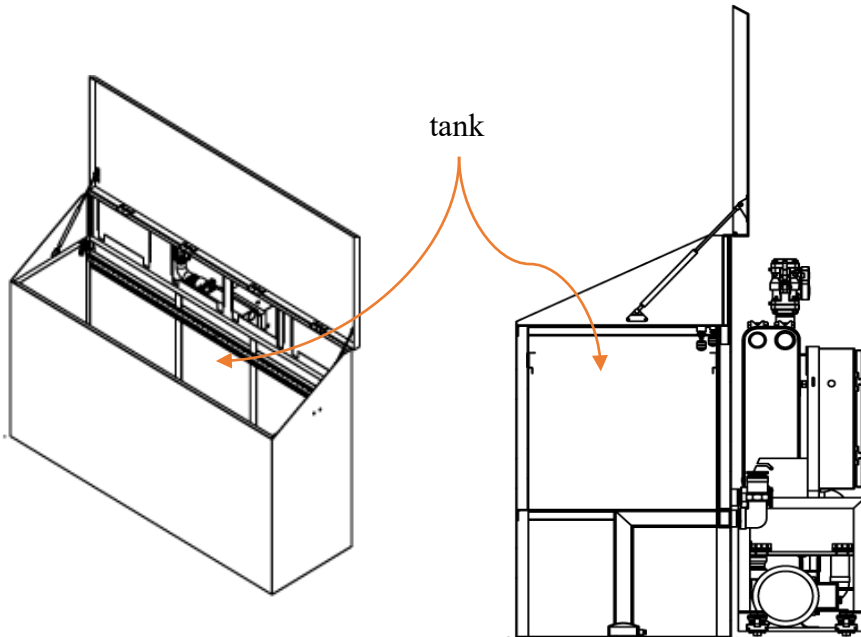
## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



(Perspective view)

(Section view)

appliances





## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



appliance slots

## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

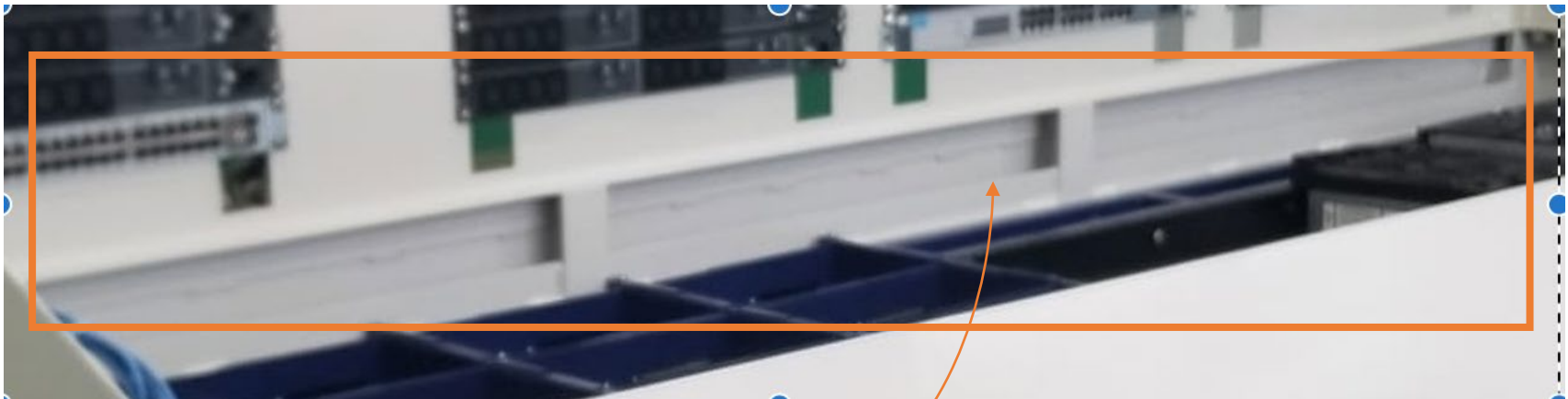
### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



the weir

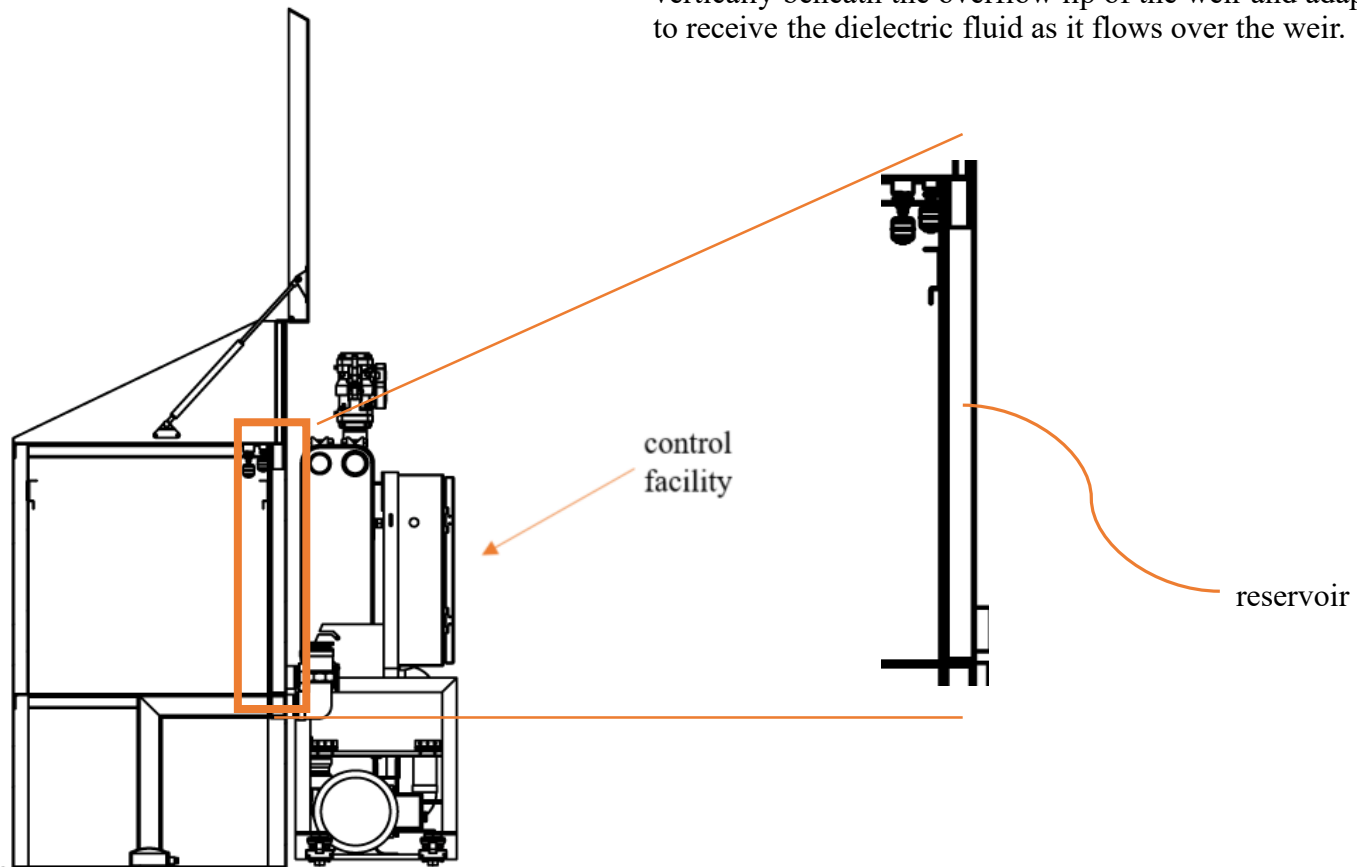
## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.



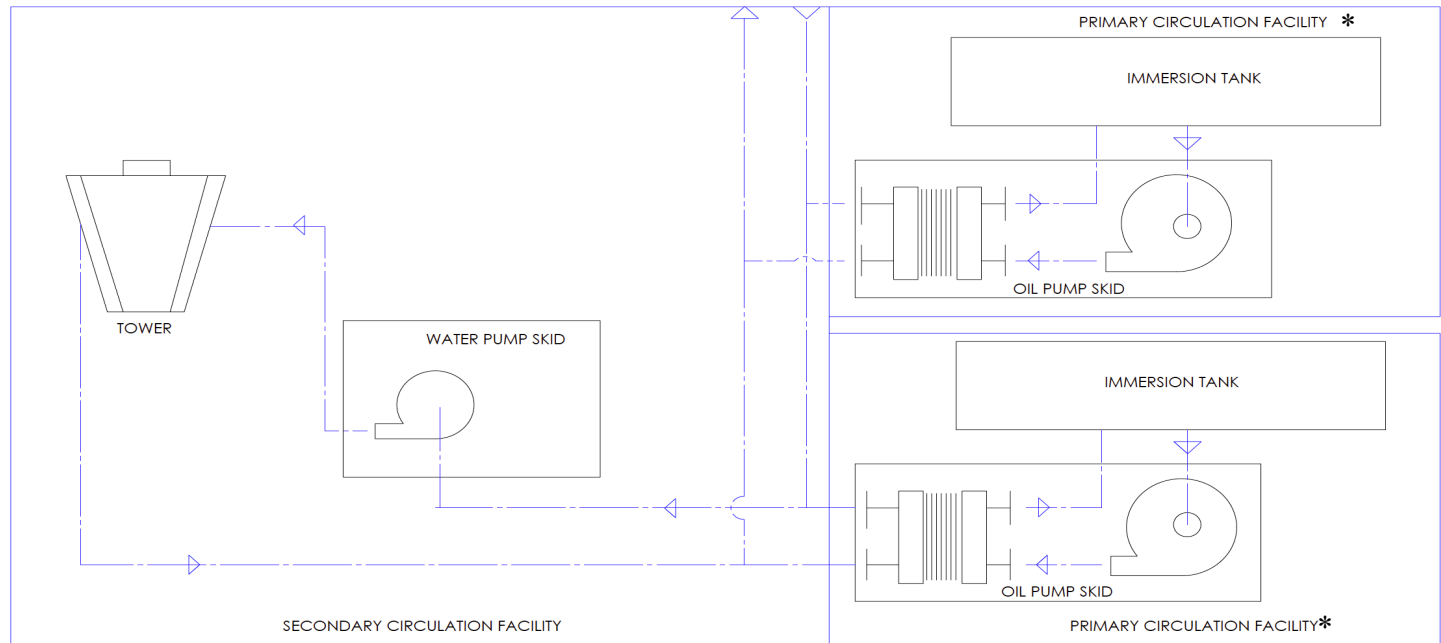
## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)<sup>18</sup>

## ‘457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

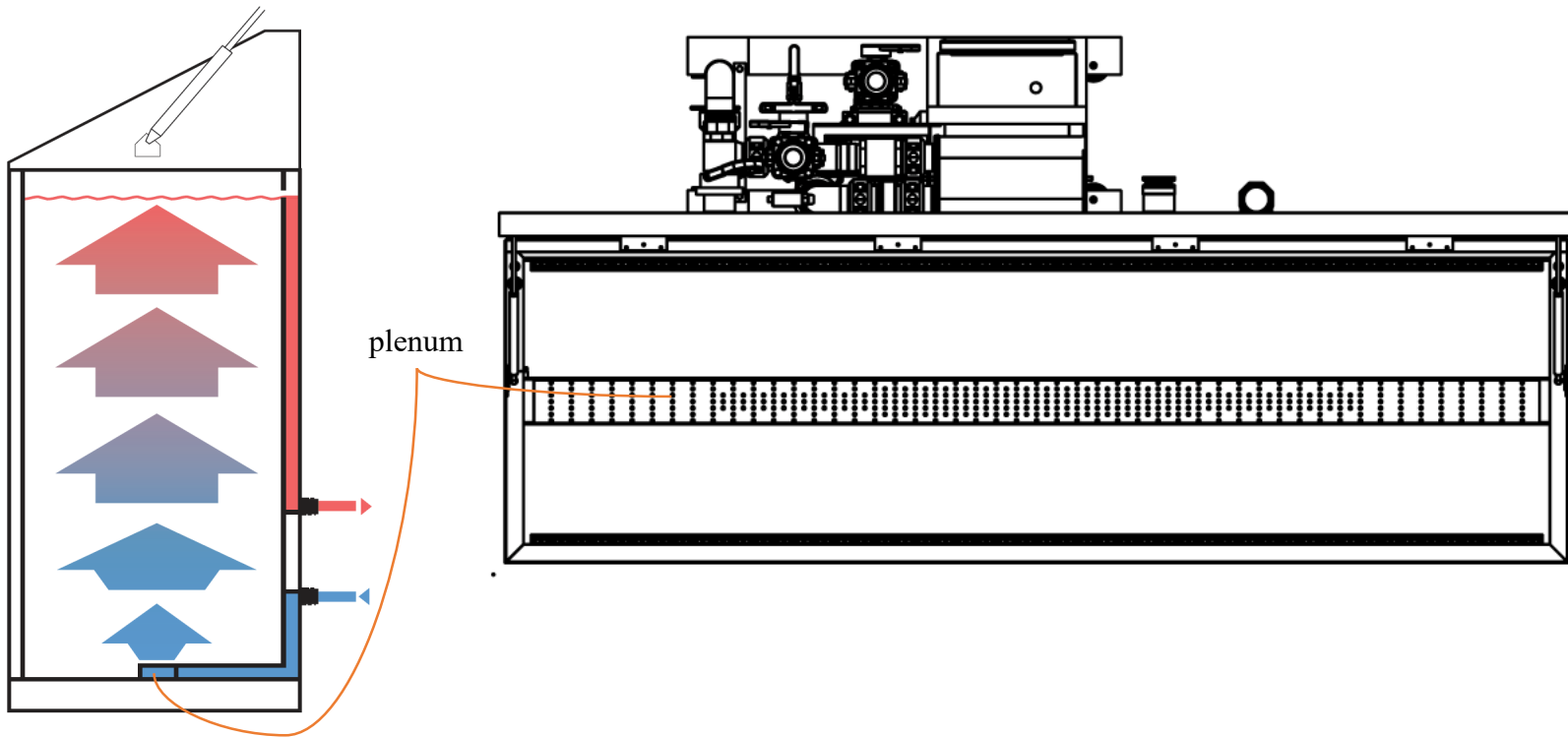
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



## '457 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

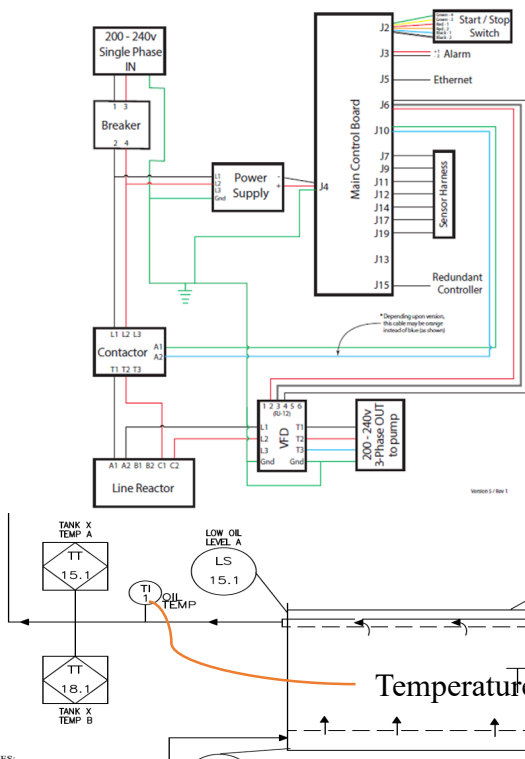
a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank. *See*, e.g., tank rendering on p. 21.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

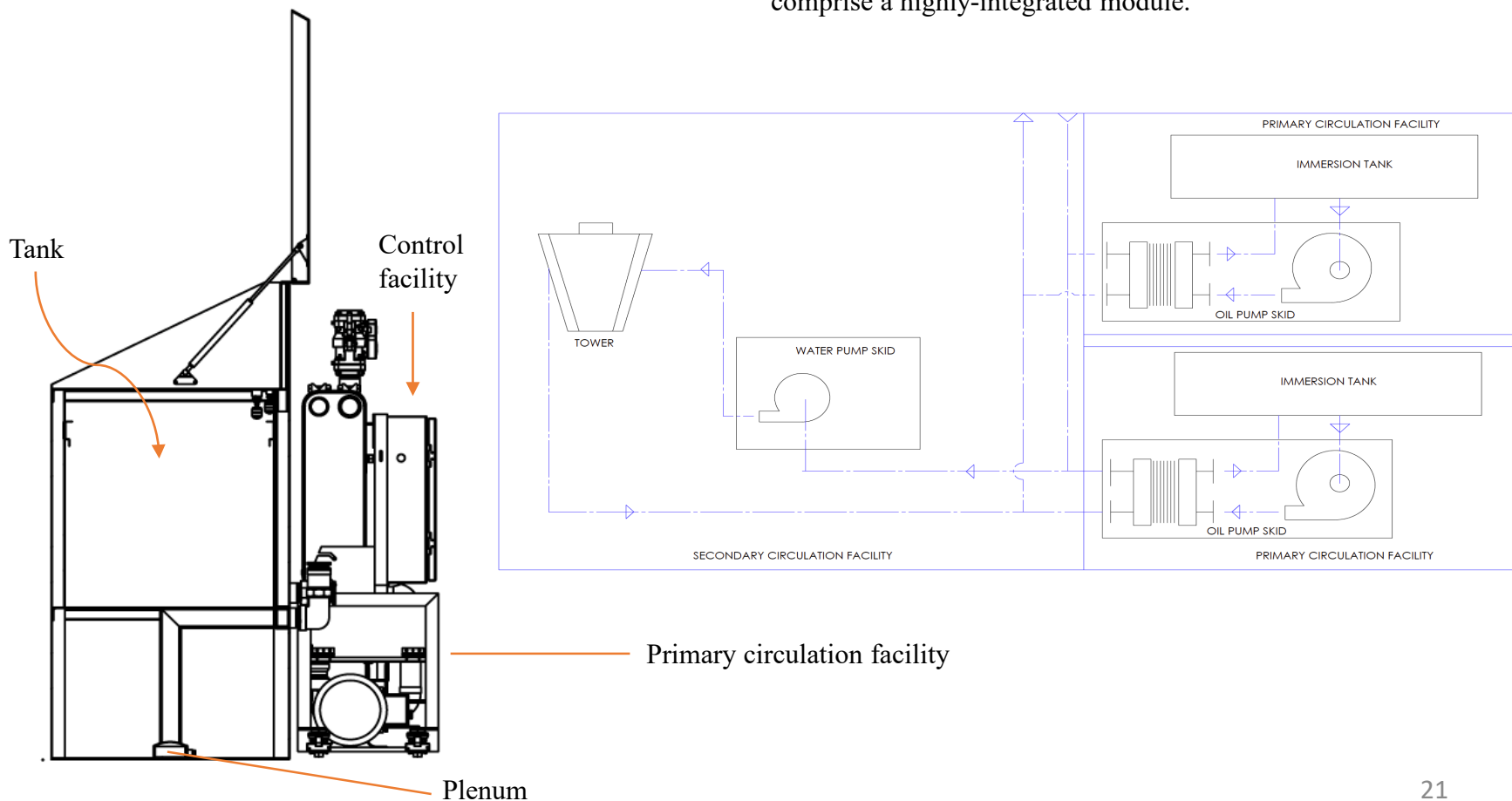
## '457 Dependent Claim 7 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The module of claim 6 wherein the tank and primary circulation facility comprise a highly-integrated module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the module of claim 6 wherein the tank and primary circulation facility comprise a highly-integrated module.



# '457 Claim 10 Chart of Midas Commercial Embodiment - 50U Tank

## Asserted Claim Elements

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

### 4 Web Interface

#### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.



## ‘457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.”  
*See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

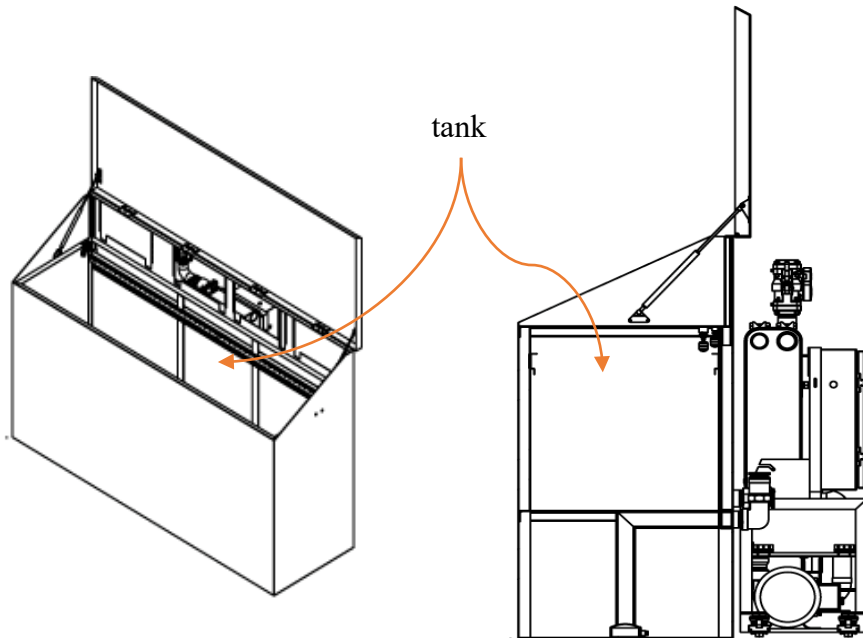
## ‘457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



(Perspective view)

(Section view)

appliances



## ‘457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank ,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending traverse to the long wall of the tank.



appliance slots

## ‘457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

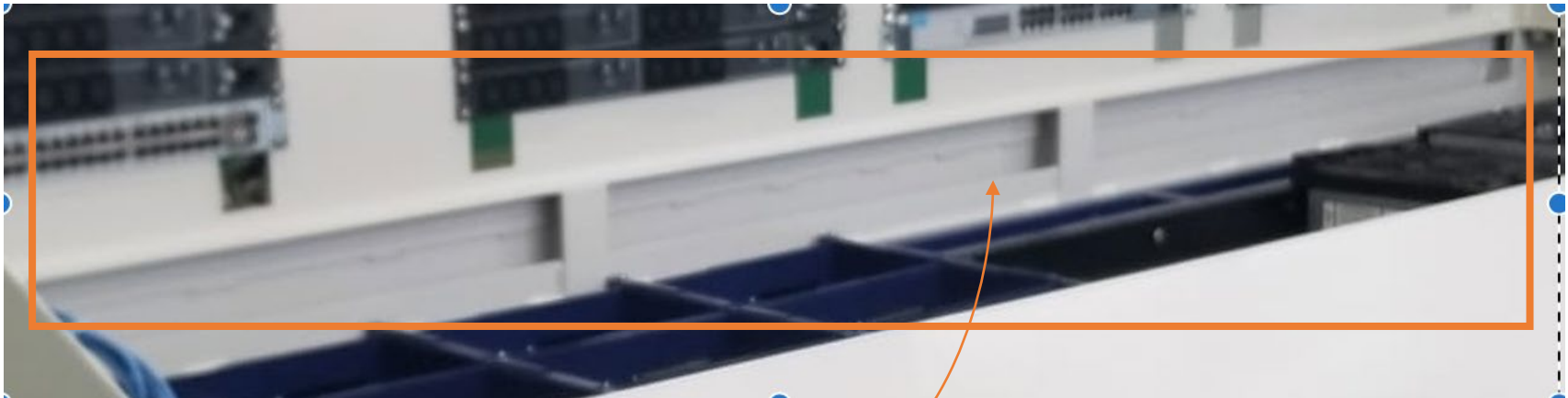
### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



the weir

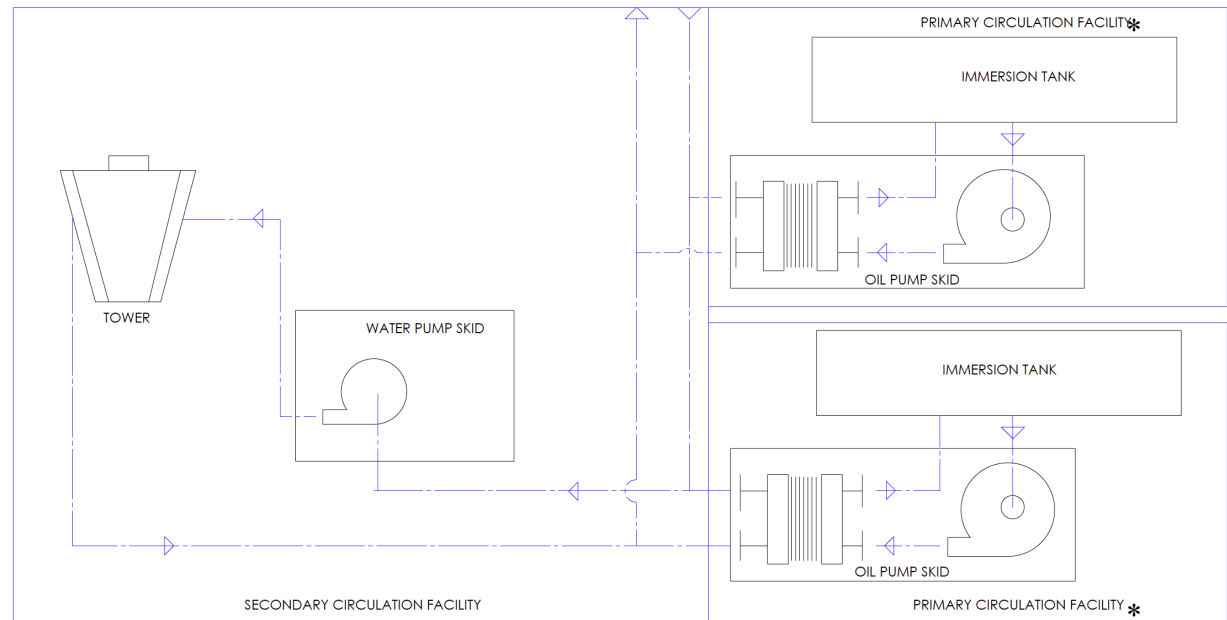
## '457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)<sub>27</sub>

## ‘457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

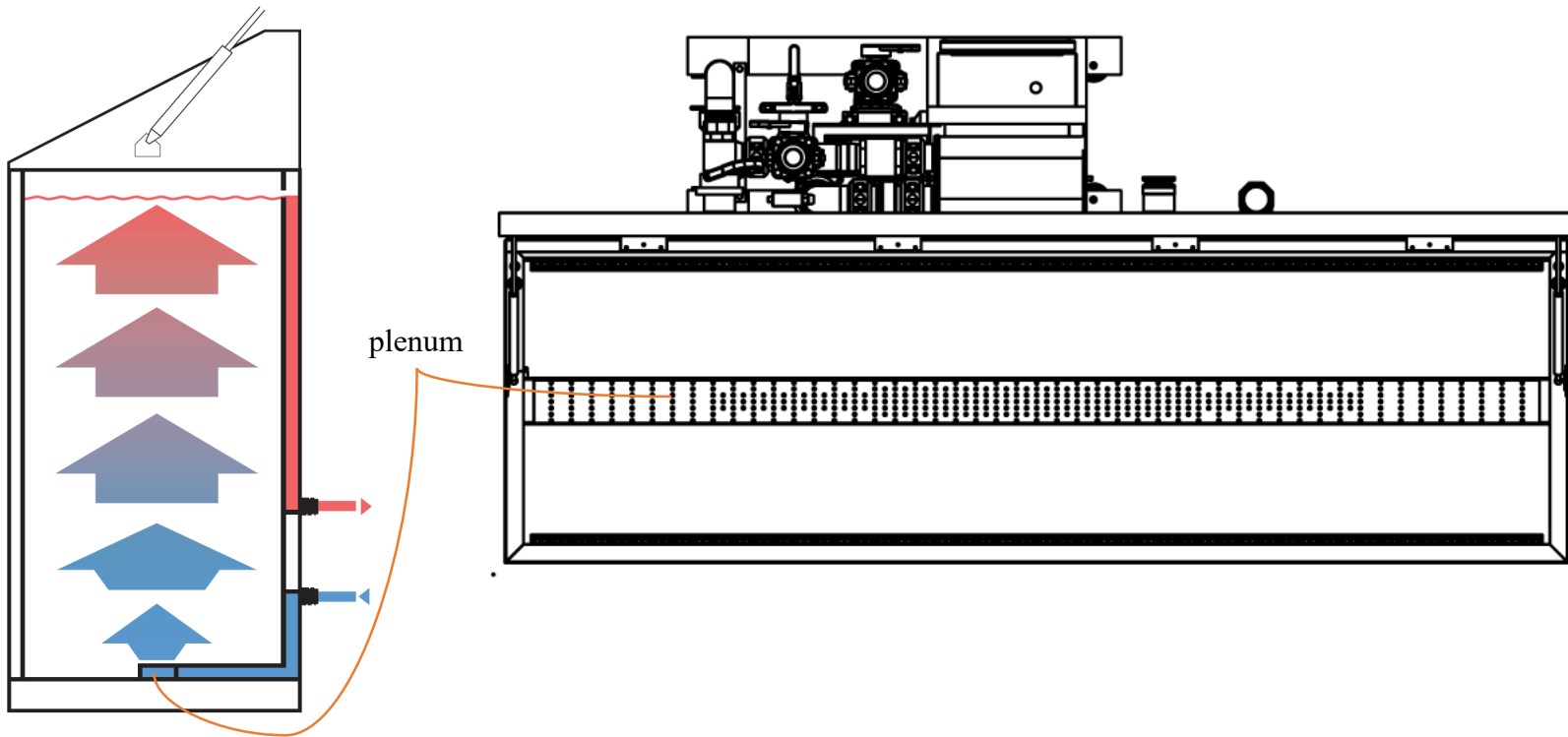
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



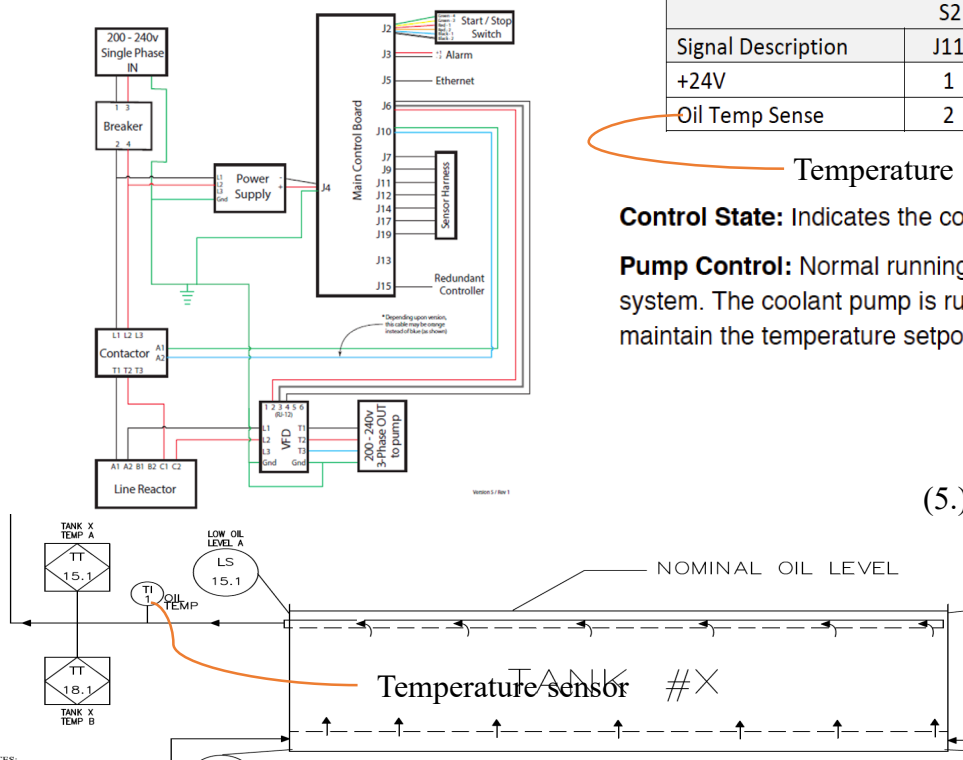
# '457 Claim 11 Chart of Midas Commercial Embodiment - 50U Tank

## Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank. *See, e.g.,* tank rendering on p. 21.

(3.)

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)



# '457 Claim 14 Chart of Midas Commercial Embodiment - 50U Tank

## Asserted Claim Elements

The module of claim 11 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

### 4 Web Interface

#### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.



# **‘457 Dependent Claim 15 Chart of Midas Commercial Embodiment - 50U Tank**

## **Asserted Claim Elements**

An appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

## **Specific Identification Where Each Element is Found Within MGT Commercial Embodiment**

The MGT Commercial Embodiment includes an appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

---

## **1 The Midas XCI System**

### **1.1 Immersion Cooling**

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

See charted claims 11–14 in reference to a tank module according to any one of the preceding claims 11 through 14.

# ‘457 Dependent Claim 16 Chart of Midas Commercial Embodiment - 50U Tank

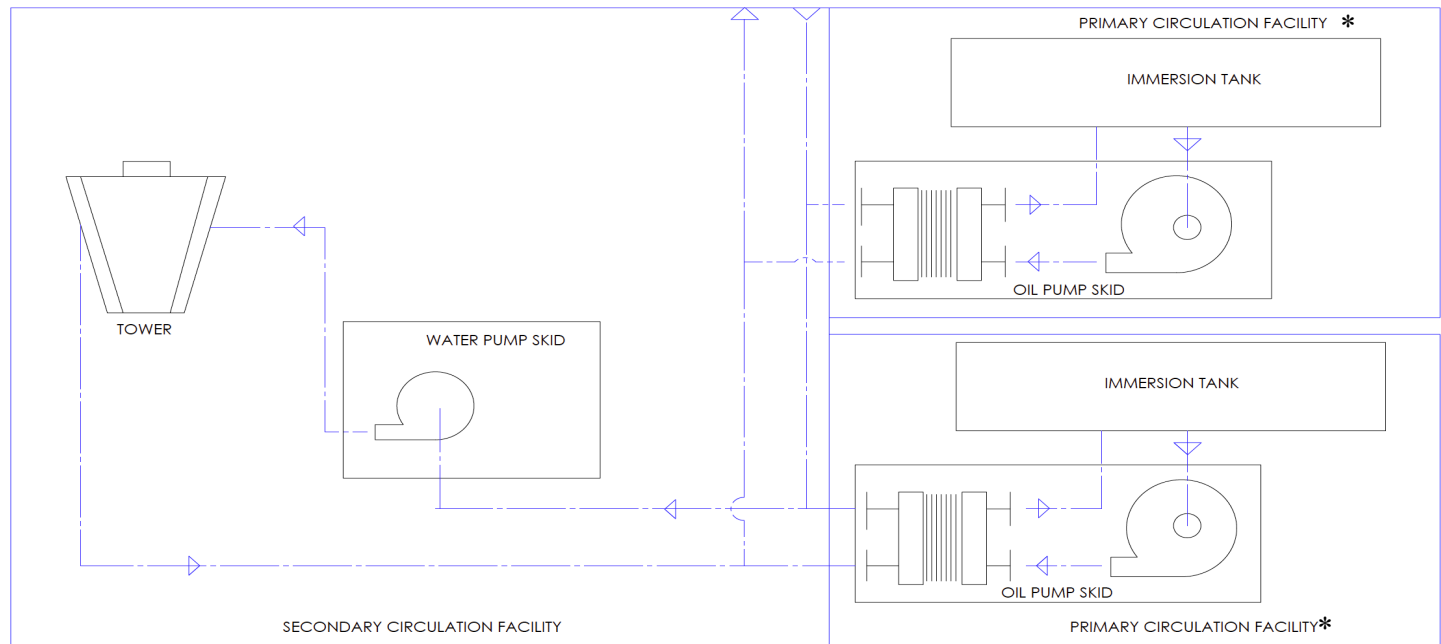
## Asserted Claim Elements

An appliance immersion cooling system according to claim 15, further comprising:

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes an appliance immersion cooling system according to claim 15, further comprising secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

An appliance immersion cooling system comprising:

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.” *See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

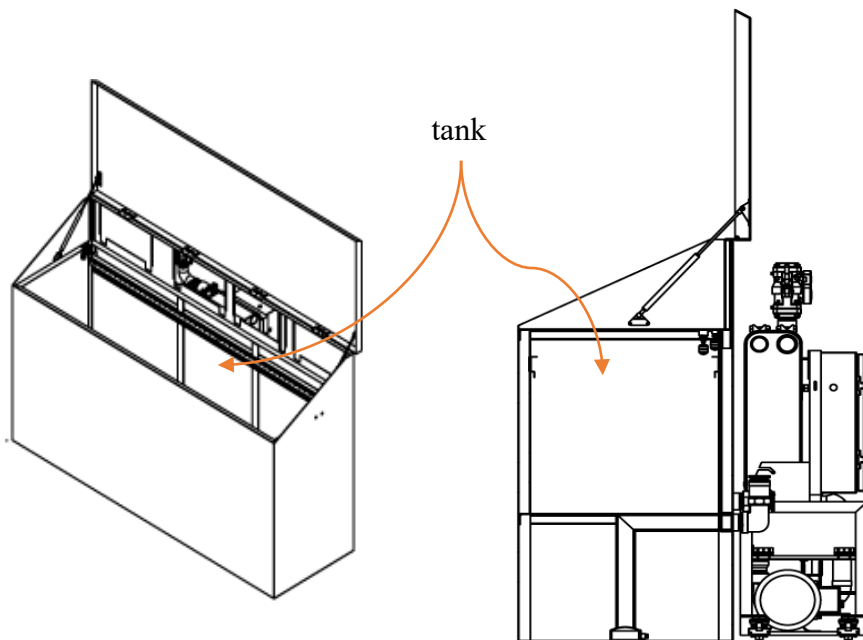
## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



(Perspective view)

(Section view)



## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



appliance slots

## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

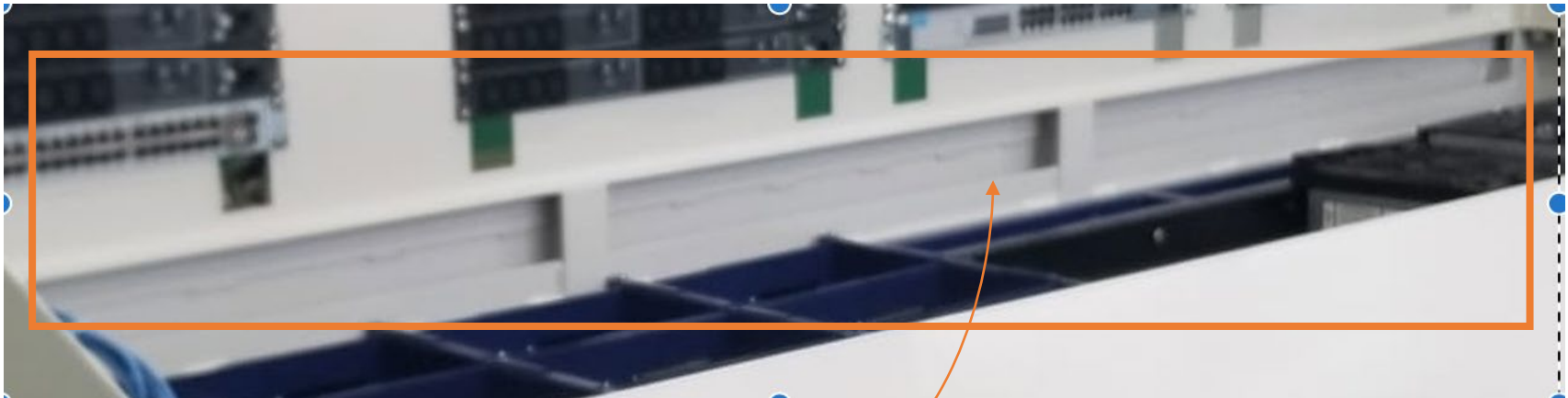
### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



the weir

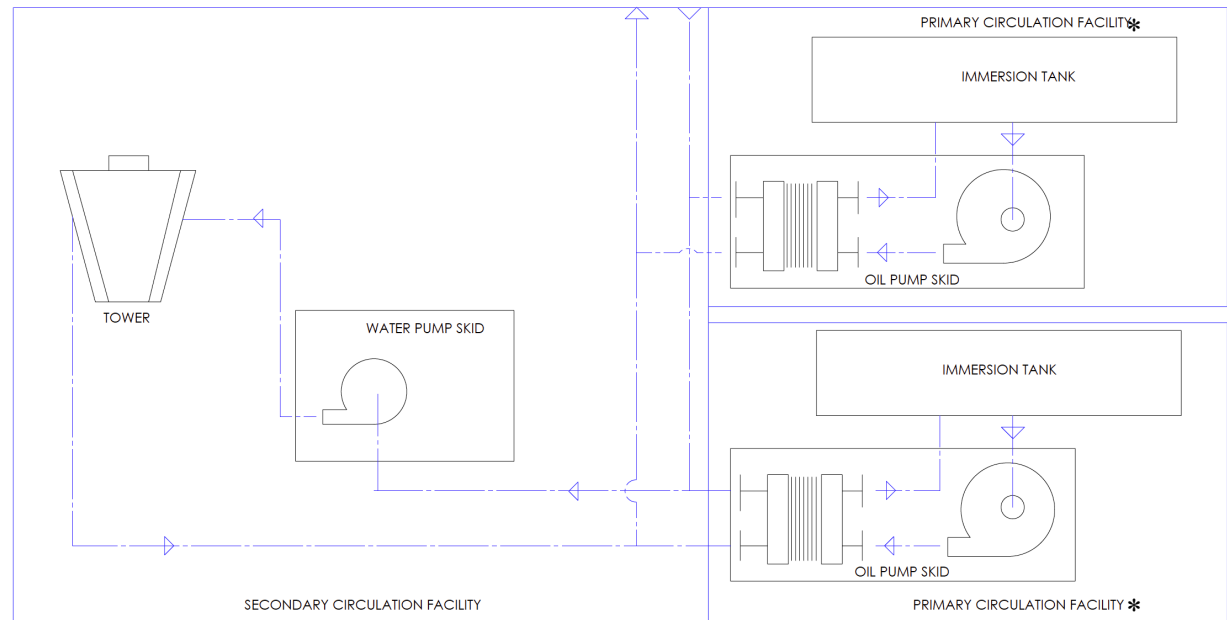
## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)



## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

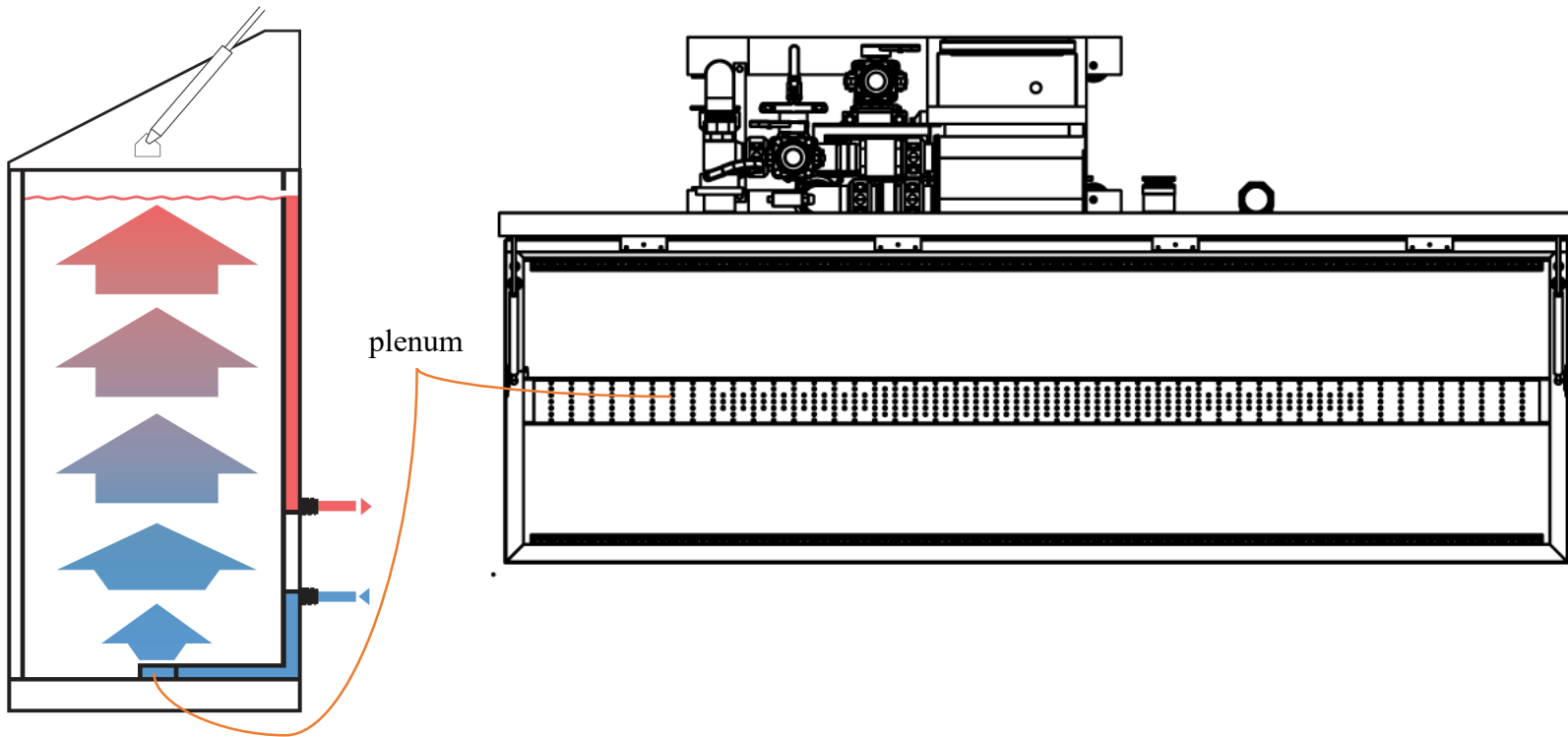
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.





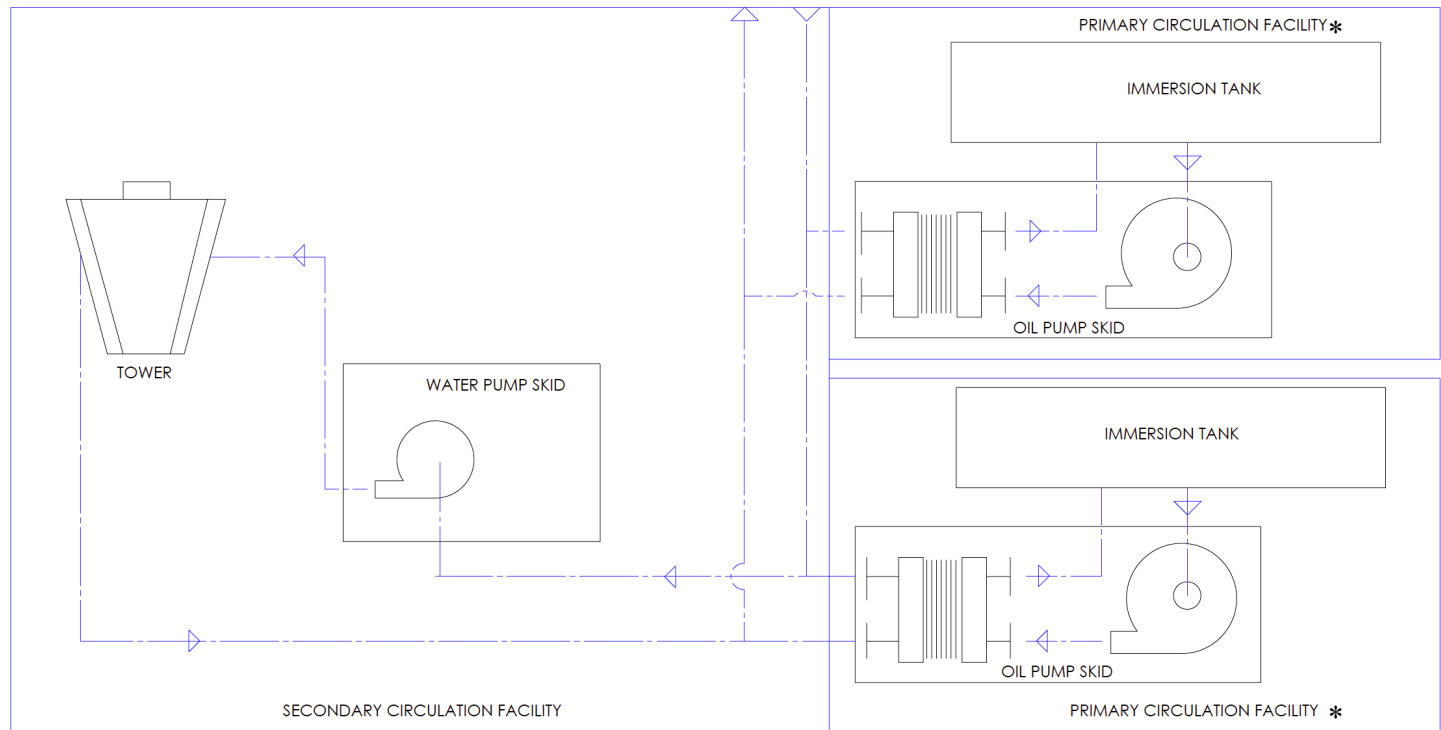
## ‘446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

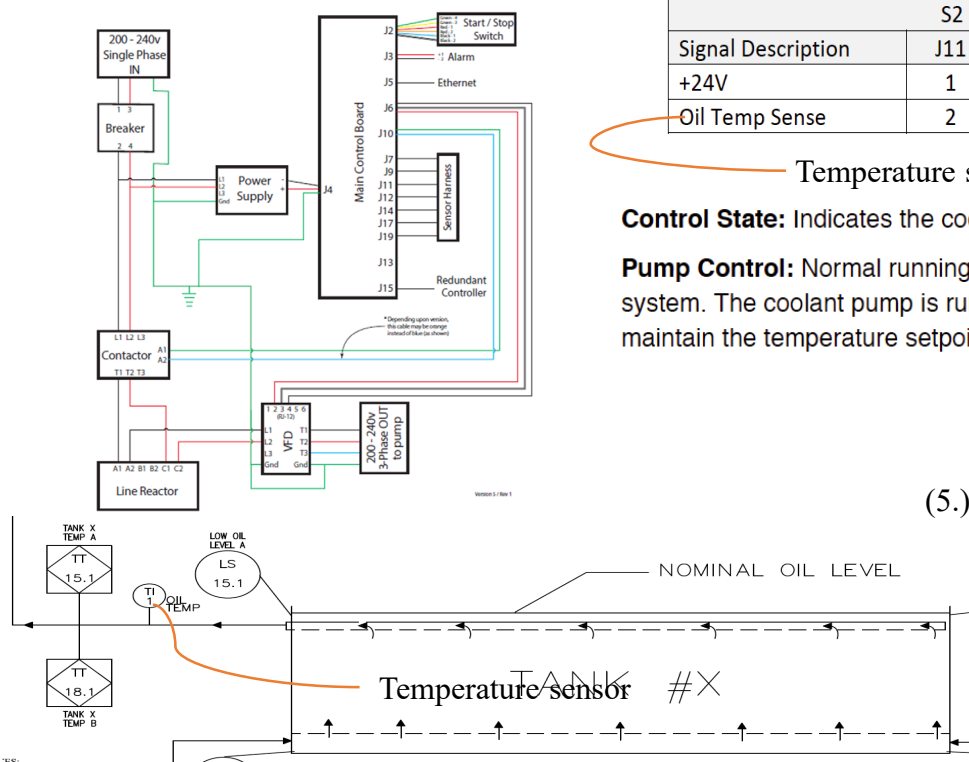
### '446 Claim 1 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

### 10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank. *See*, e.g., tank rendering on p. 41.

(3.)

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

- Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) *Midas XCI System User Manual*, pg. 81.

(3.) *Midas XCI System User Manual*, pg. 83.

(4.) *Midas XCI System User Manual*, pg. 28.

(5.) *Midas Green Tech Tank & Oil Cooling P&ID System*, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

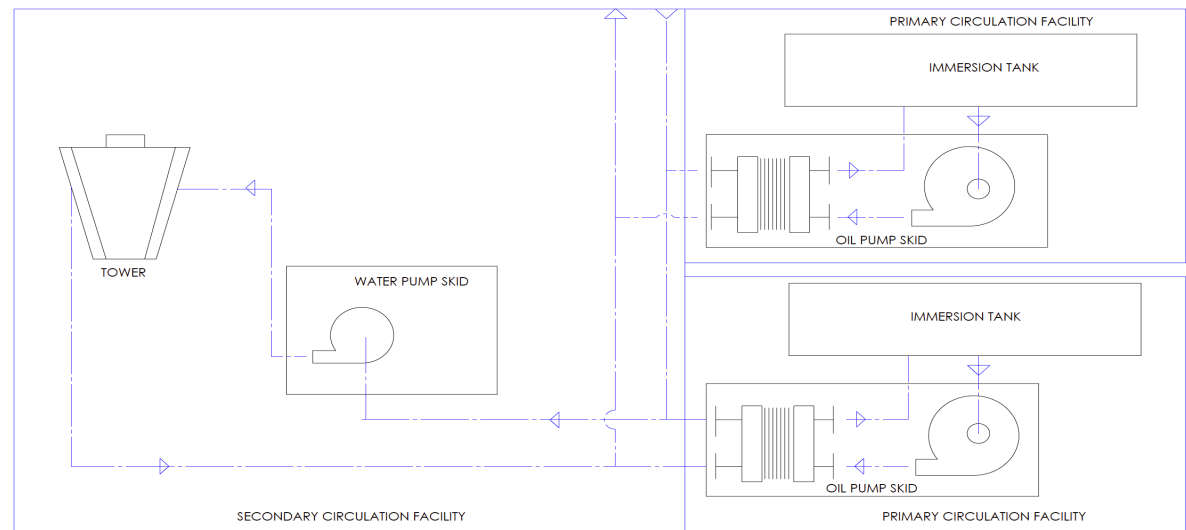
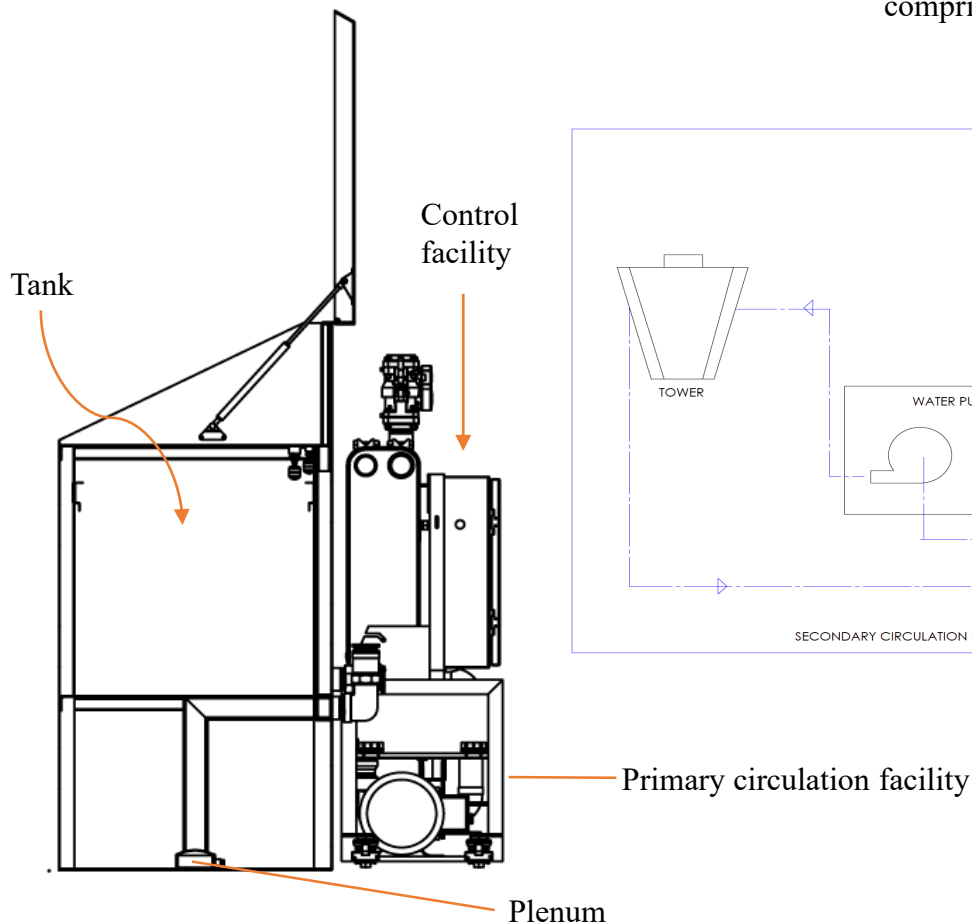
## ‘446 Dependent Claim 2 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module.



## '446 Claim 5 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location

#### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

#### 4 Web Interface

##### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.”  
See generally MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

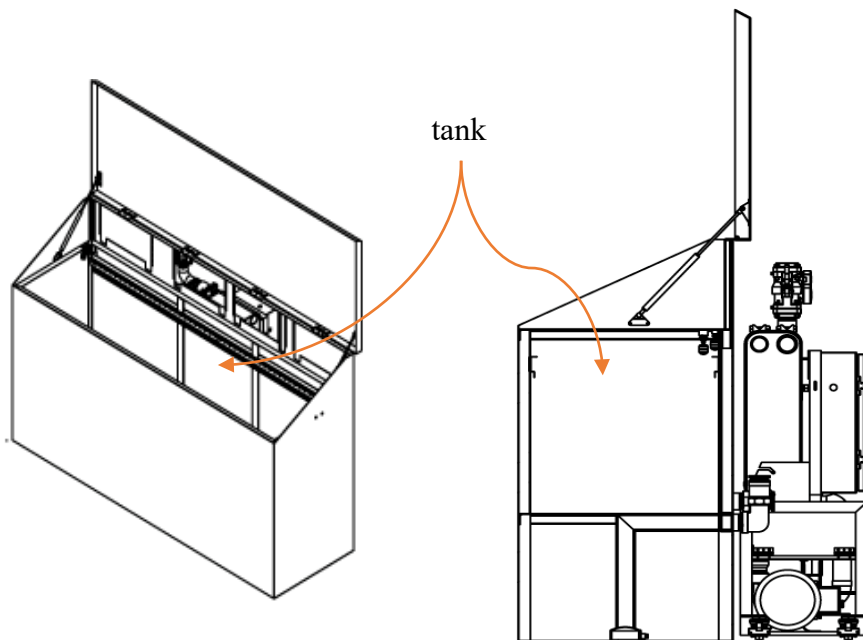
## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



(Perspective view)

(Section view)



## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



appliance slots



## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

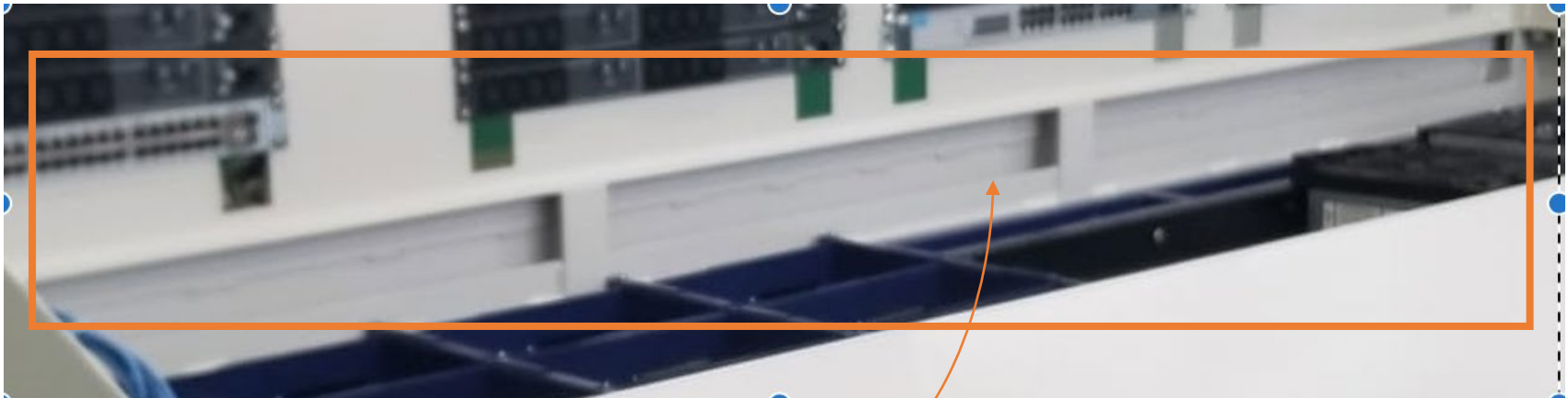
### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



the weir



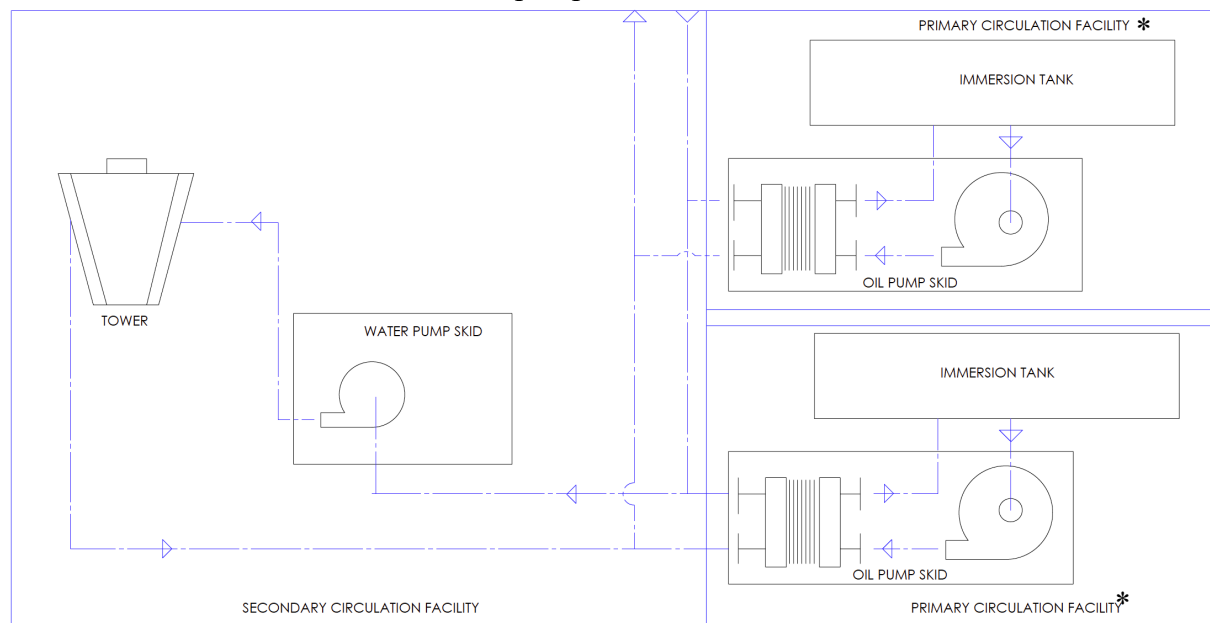
## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank

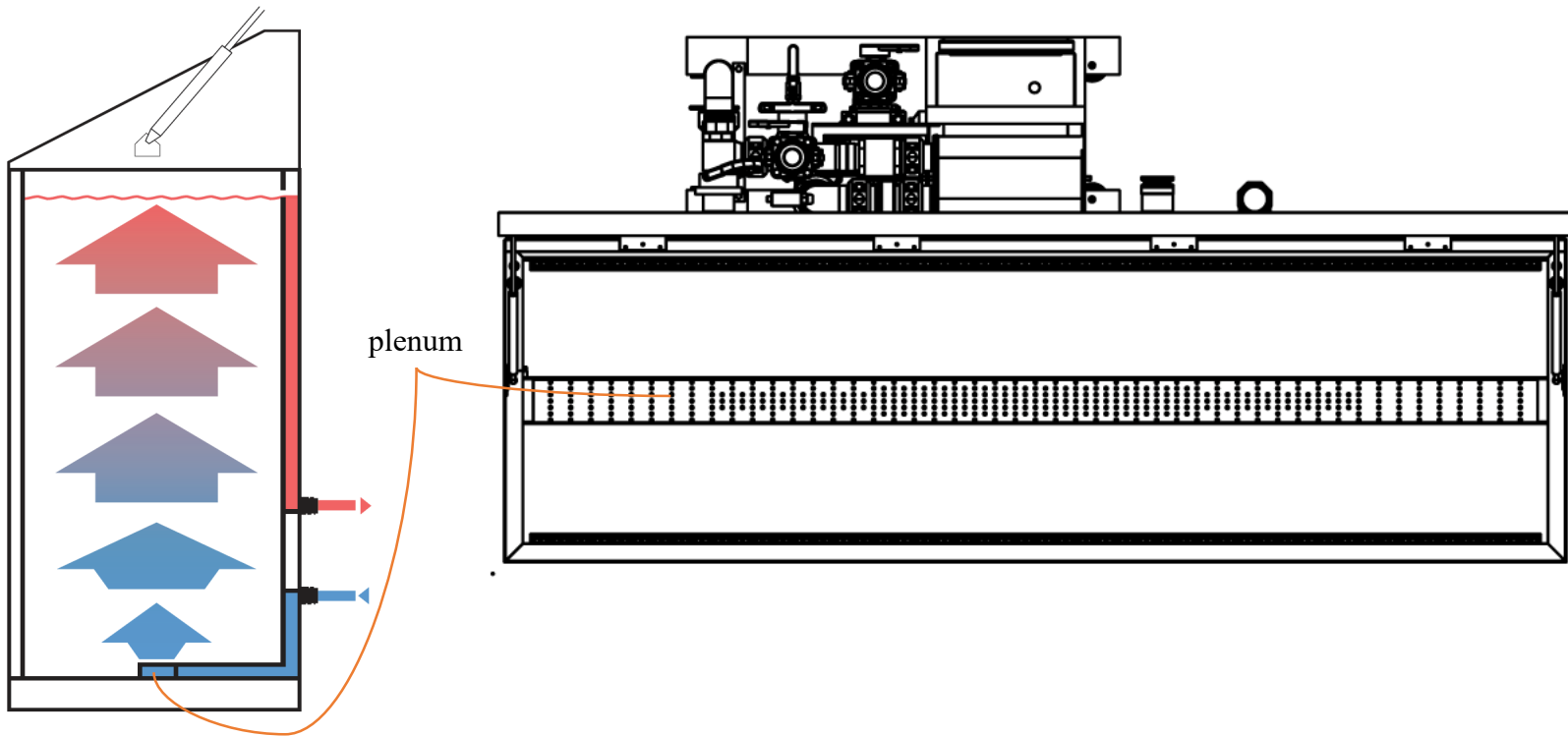
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



### **'446 Claim 6 Chart of Midas Commercial Embodiment - 50U Tank**

### Asserted Claim Elements

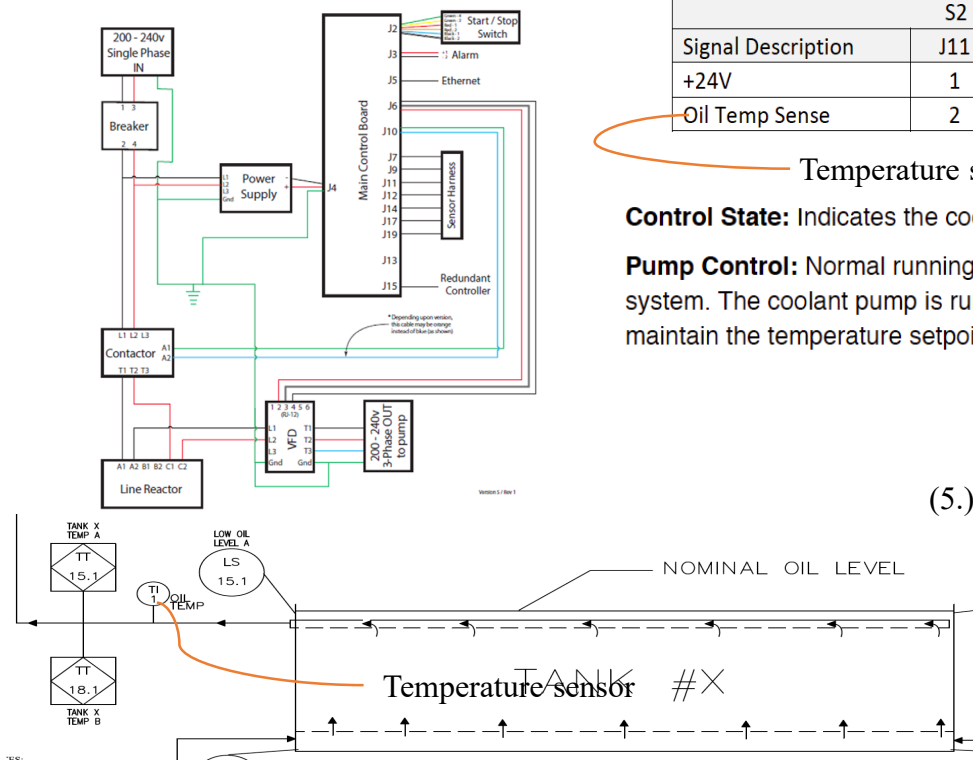
a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary circulation facility as a function of the temperature of the dielectric fluid in the tank. *See*, e.g., tank rendering on p. 51.

### 10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



(5.)

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

- Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(2.) *Midas XCI System User Manual*, pg. 81.

(3.) *Midas XCI System User Manual*, pg. 83.

(4.) *Midas XCI System User Manual*, pg. 28.

(5.) *Midas Green Tech Tank & Oil Cooling P&ID*

System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

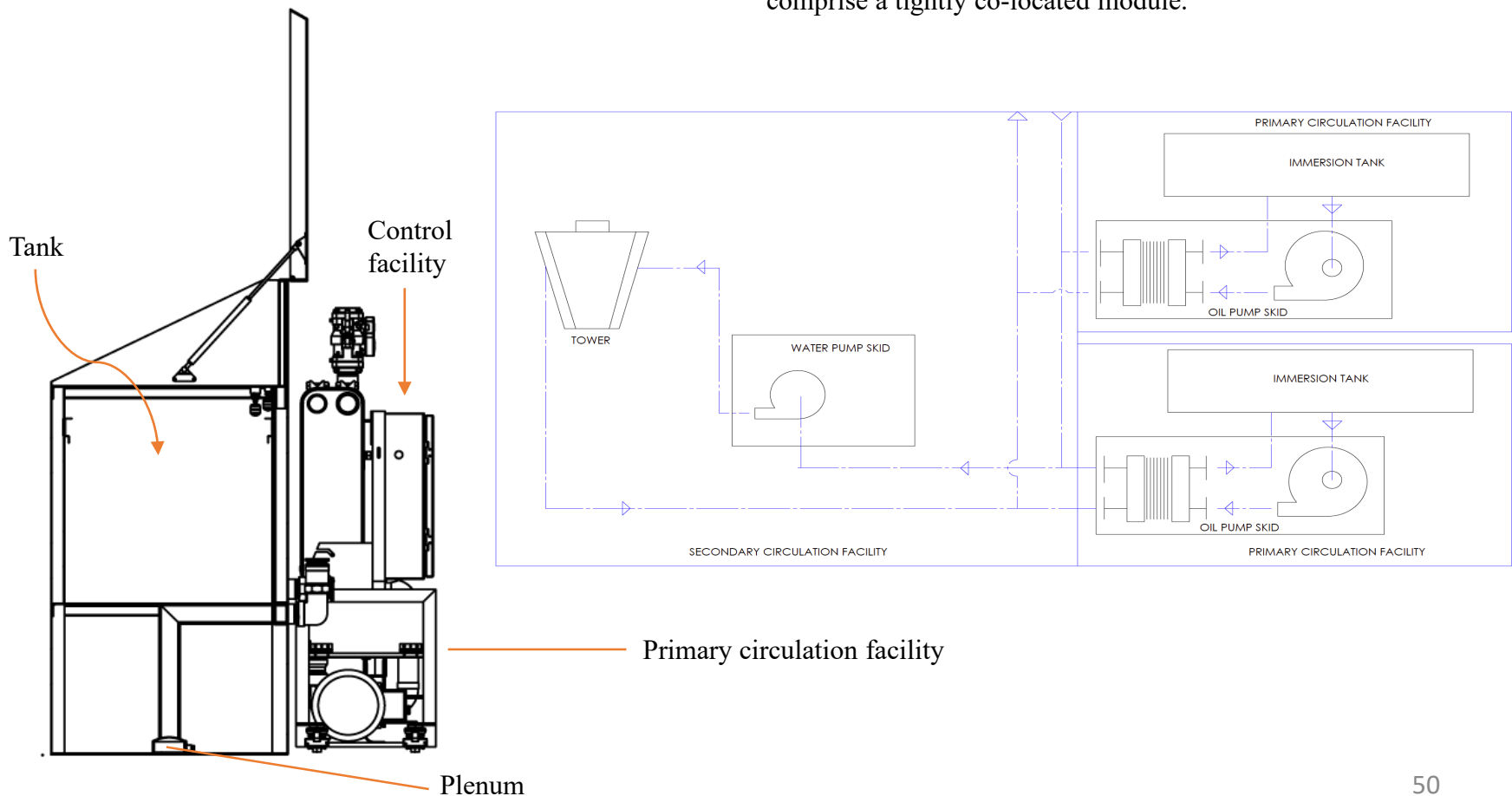
## ‘446 Dependent Claim 7 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module.



## '446 Claim 10 Chart of Midas Commercial Embodiment - 50U Tank

### Asserted Claim Elements

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

#### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

#### 4 Web Interface

##### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## **Exhibit C**

## **‘457 and ‘446 Claim Charts of Midas Commercial Embodiment - 12U Tank Systems**

These claim charts are intended to provide notice to defendants of Midas’ contention that its Midas’ commercially-produced 12U Tank Systems, i.e., Midas’ XCI4S-W-12 and XCI4S-A-3 practice the asserted claims, i.e., ‘457 Patent, Claims 1, 2, 5, 6, 7, 10, 11, 14, 15, and 16; and ‘446 Patent, Claims 1, 2, 5, 6, 7, and 10. These claim charts are believed to be applicable to the entirety of Midas’ developmental XCI4S tank systems, for example, the following: XCI4S-W-25 and XCI4S-A-12 tank systems.

Each claim element or limitation of the asserted claims is literally present in the Midas 12U Tank Systems. Any claim element or limitation that is not literally present in the Midas 12U Tank Systems (if any), is present under a doctrine of equivalents.

## ‘457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

1. An appliance immersion cooling system comprising:

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.” *See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)



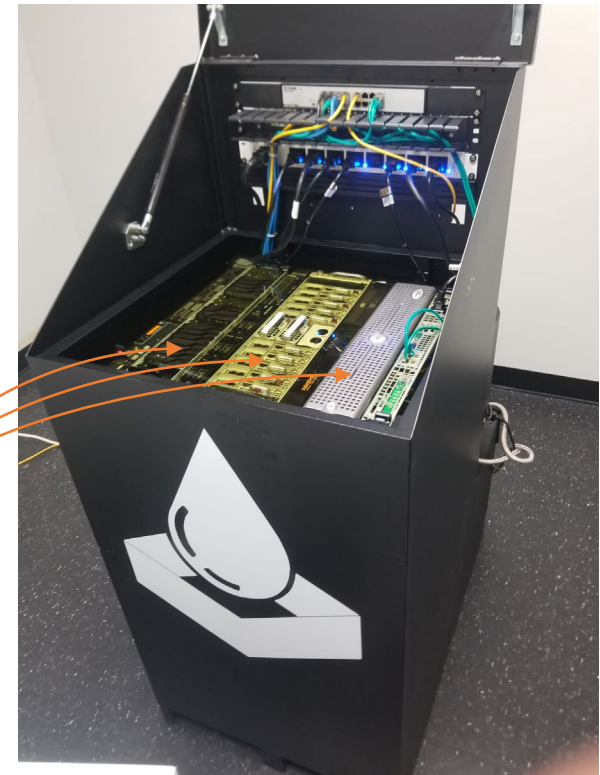
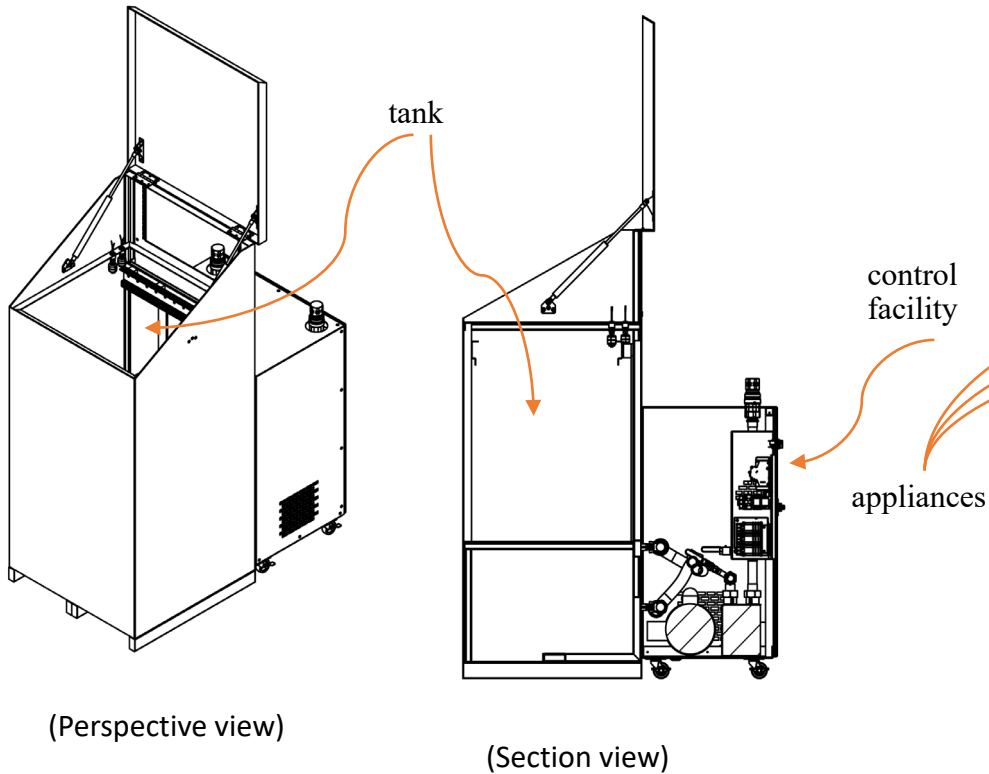
## '457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



## ‘457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



## ‘457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



The weir

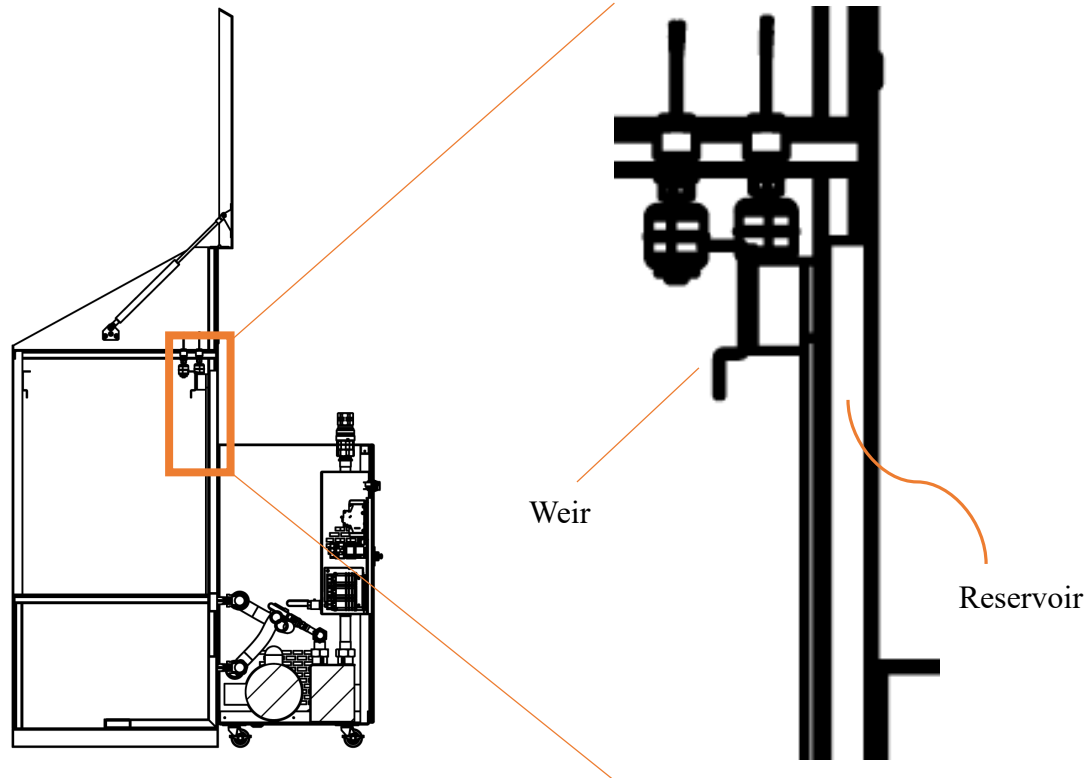
## ‘457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.



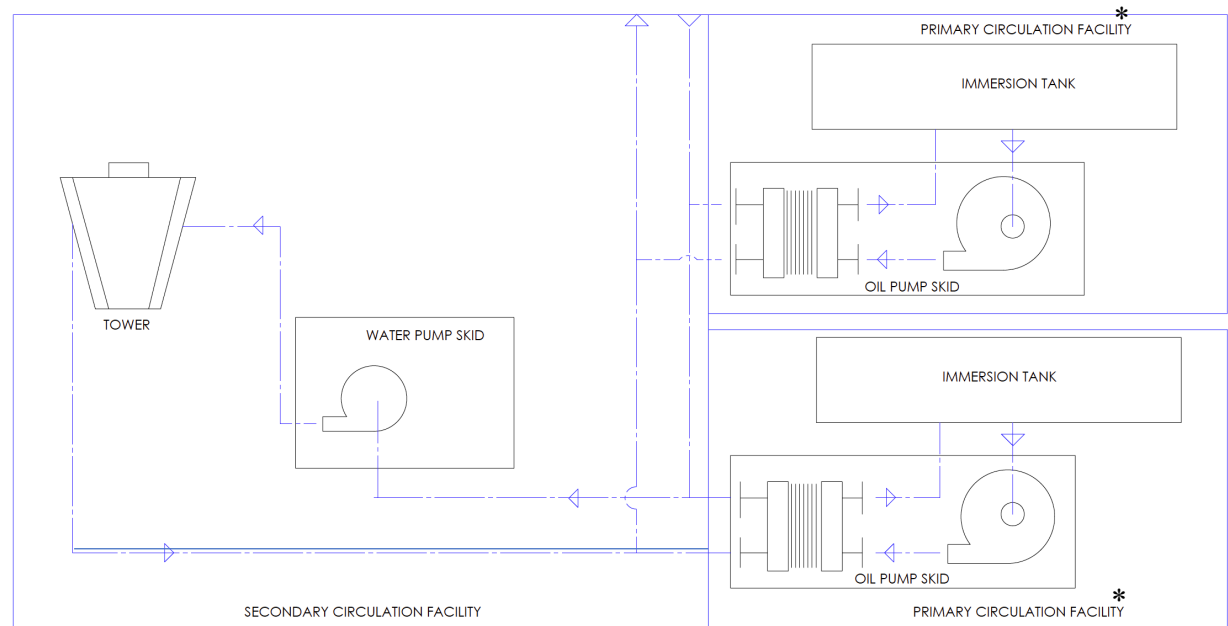
## '457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

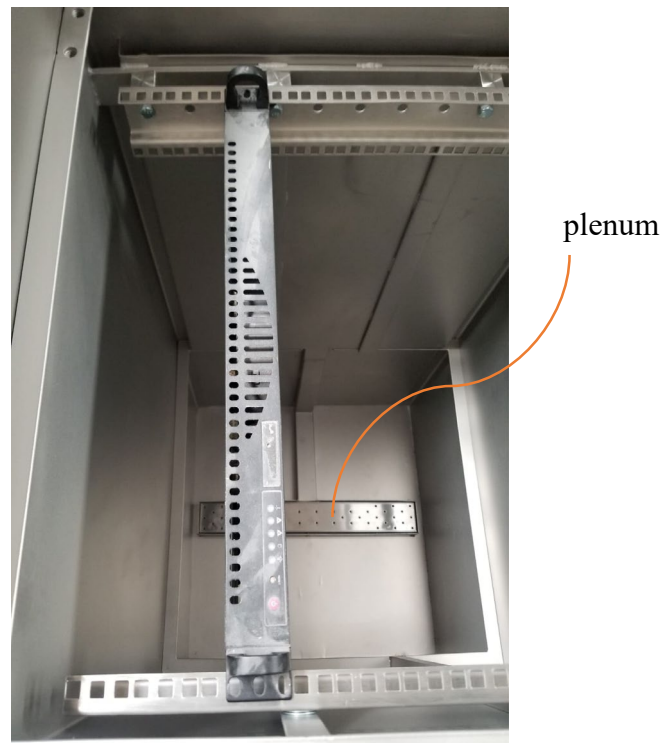
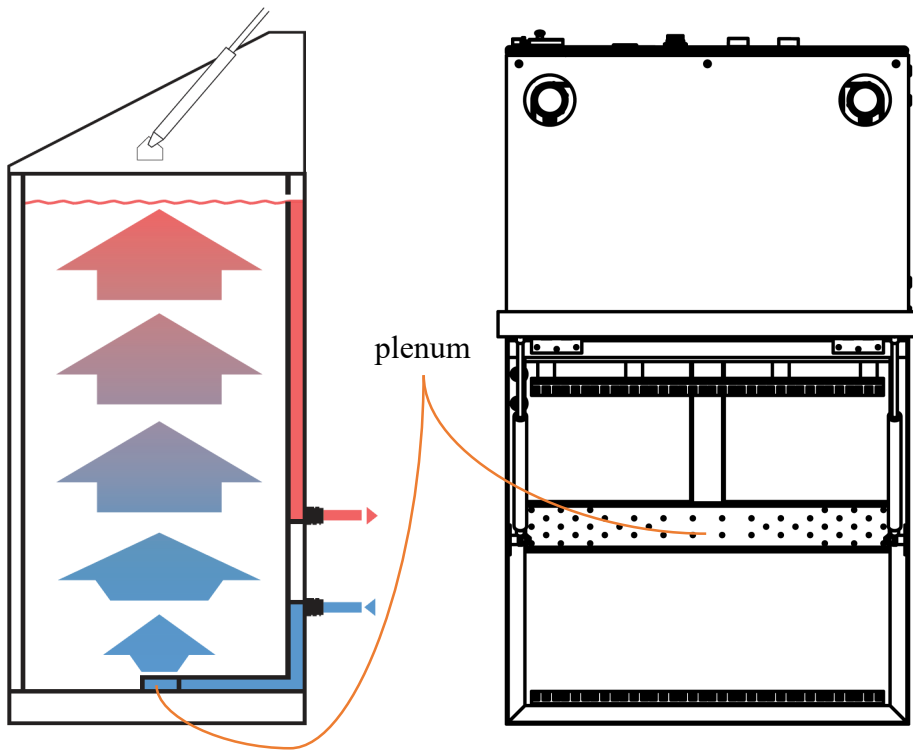
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



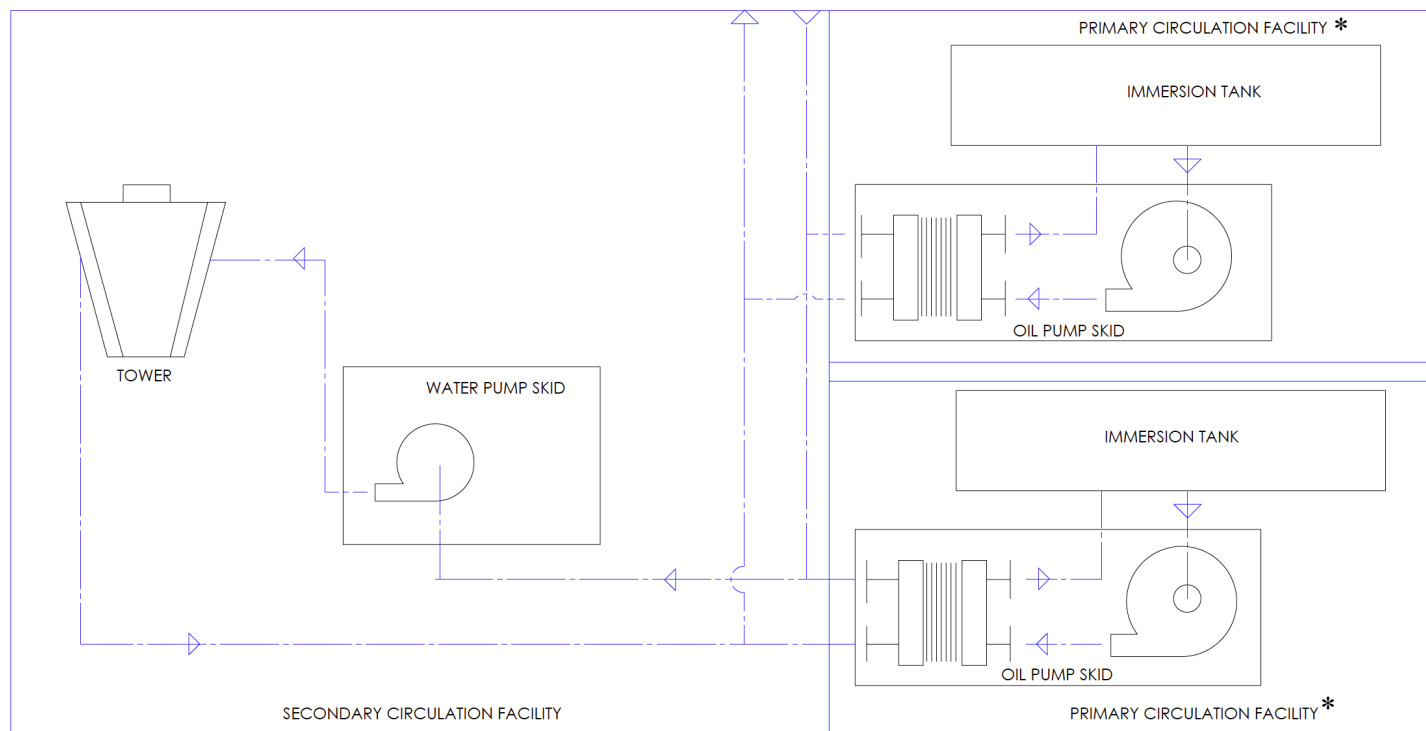
## '457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)



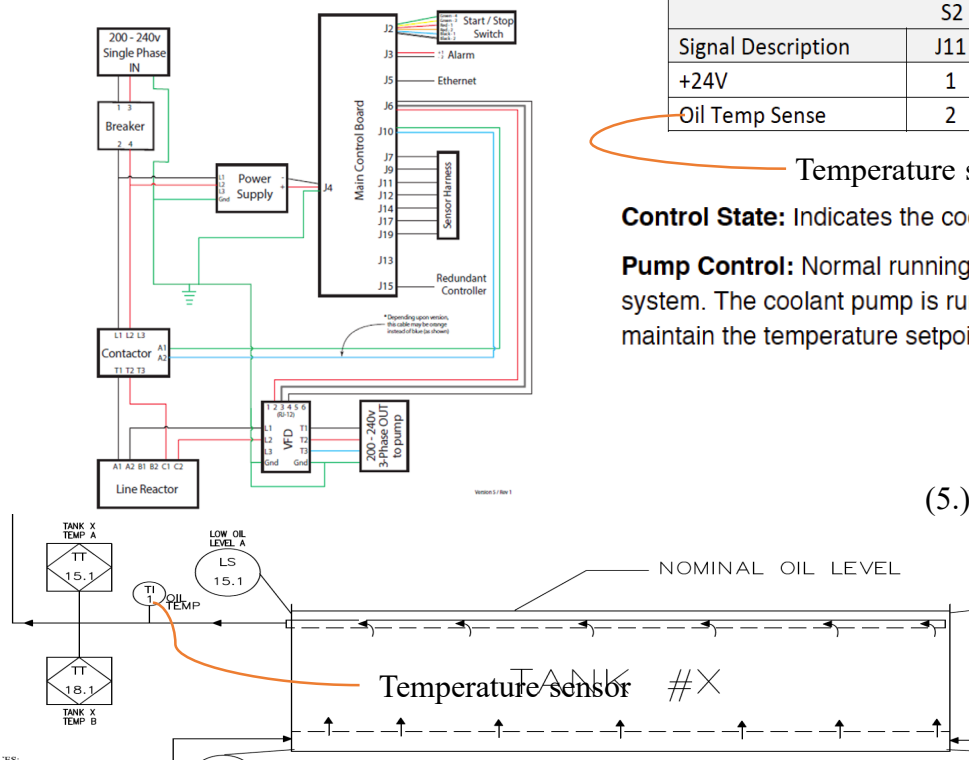
### **'457 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank**

### Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

### 10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

(3.)

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

- Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) *Midas XCI System User Manual*, pg. 81.

(3.) *Midas XCI System User Manual*, pg. 83.

(4.) *Midas XCI System User Manual*, pg. 28.

(5.) *Midas Green Tech Tank & Oil Cooling P&ID System*, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)



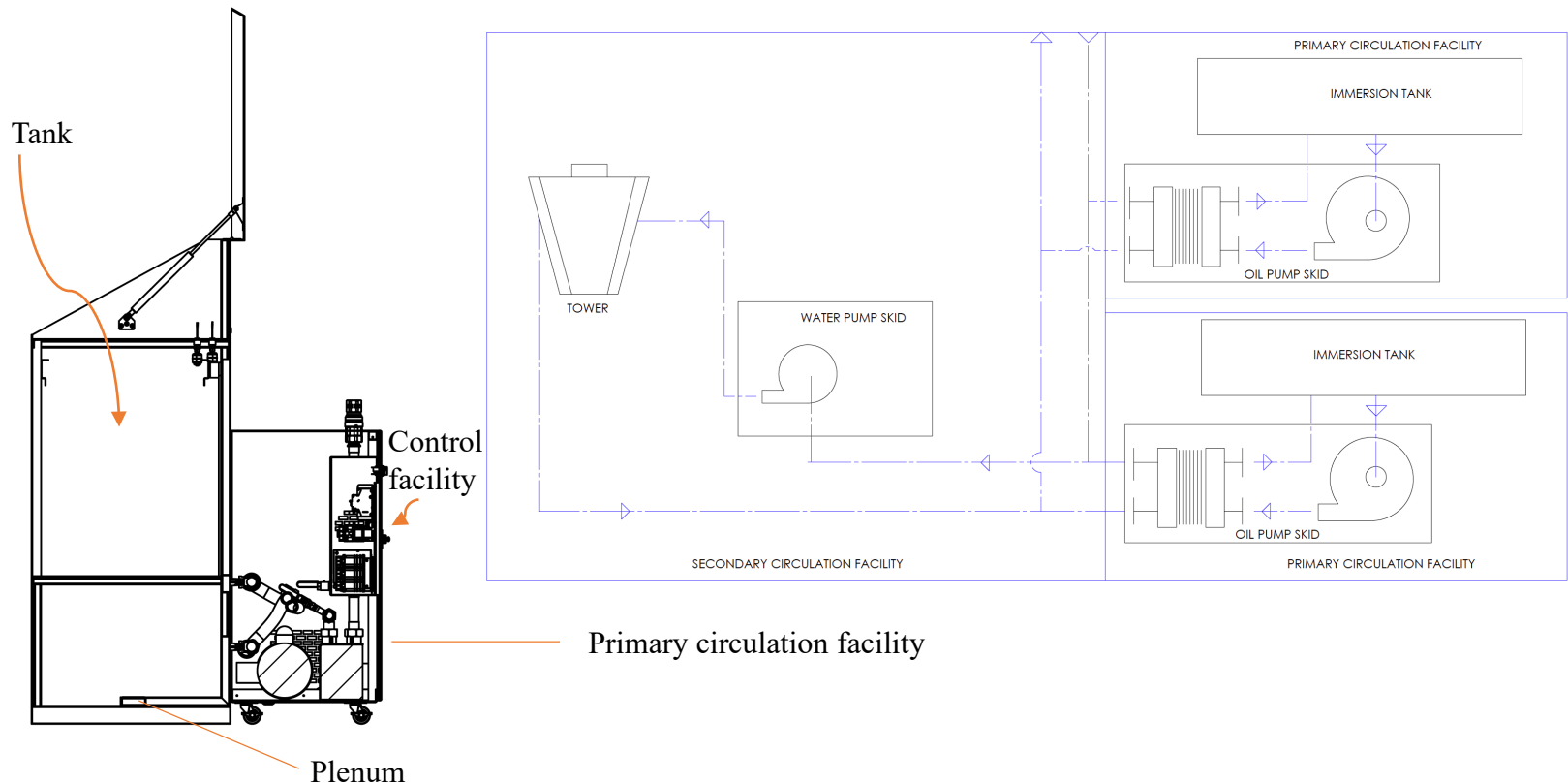
## ‘457 Dependent Claim 2 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The system of claim 1 wherein the tank and primary circulation facility comprise a highly-integrated module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the system of claim 1 wherein the tank and primary circulation facility comprise a highly-integrated module.



# '457 Claim 5 Chart of MGT Commercial Embodiment - 12U Tank

## Asserted Claim Elements

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

### 4 Web Interface

#### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.” See generally MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

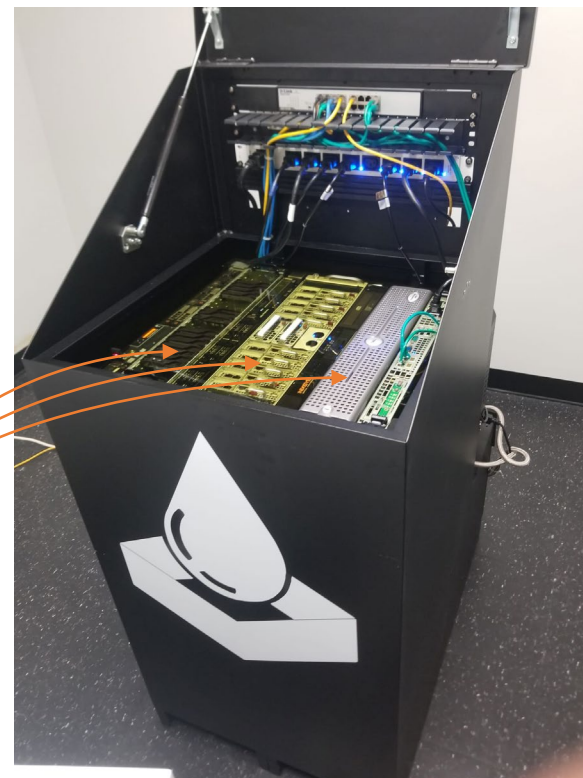
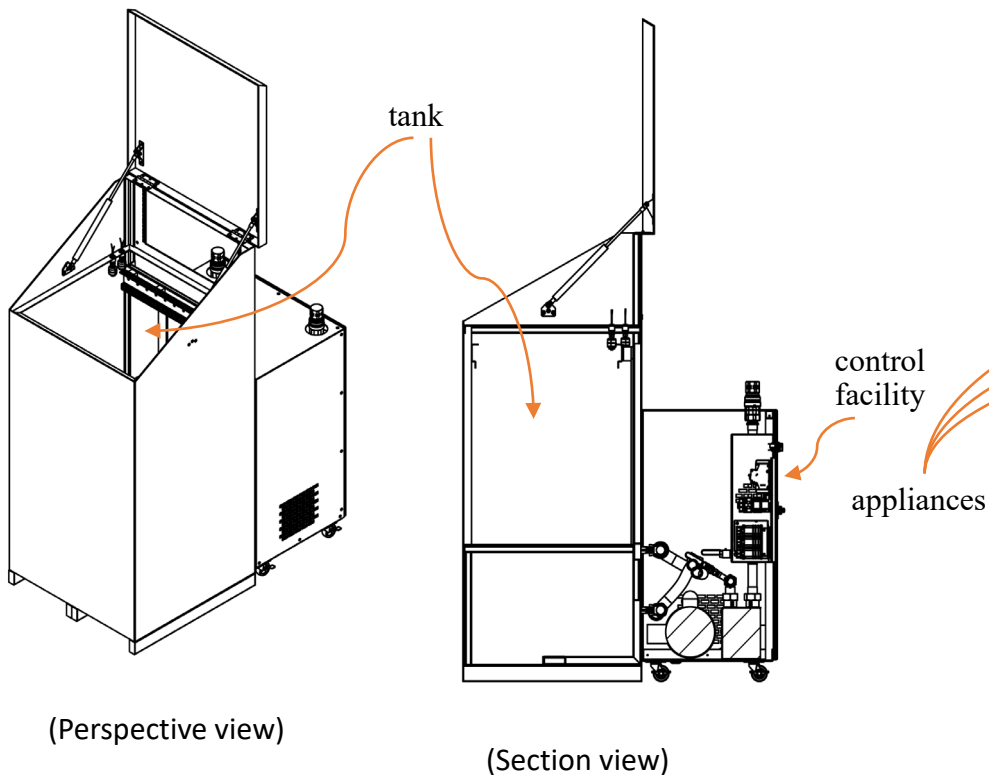
## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir having an overflow lip adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the lip of the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



The weir



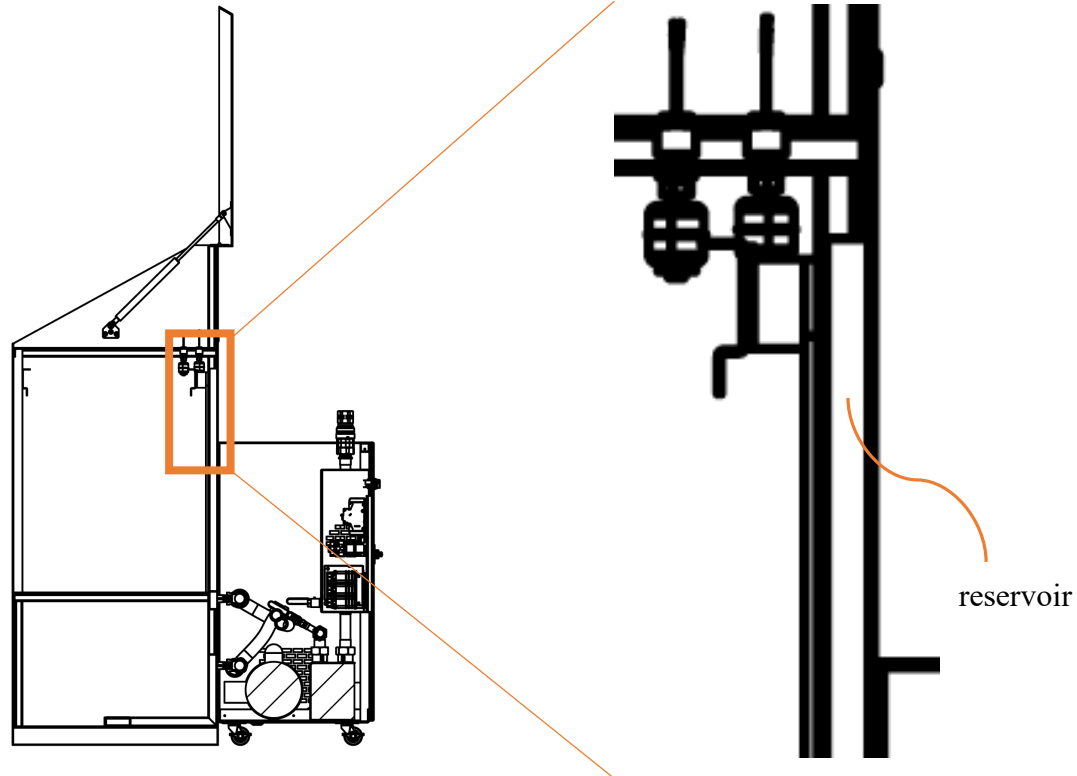
## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a dielectric fluid recovery reservoir positioned vertically beneath the overflow lip of the weir and adapted to receive the dielectric fluid as it flows over the weir.



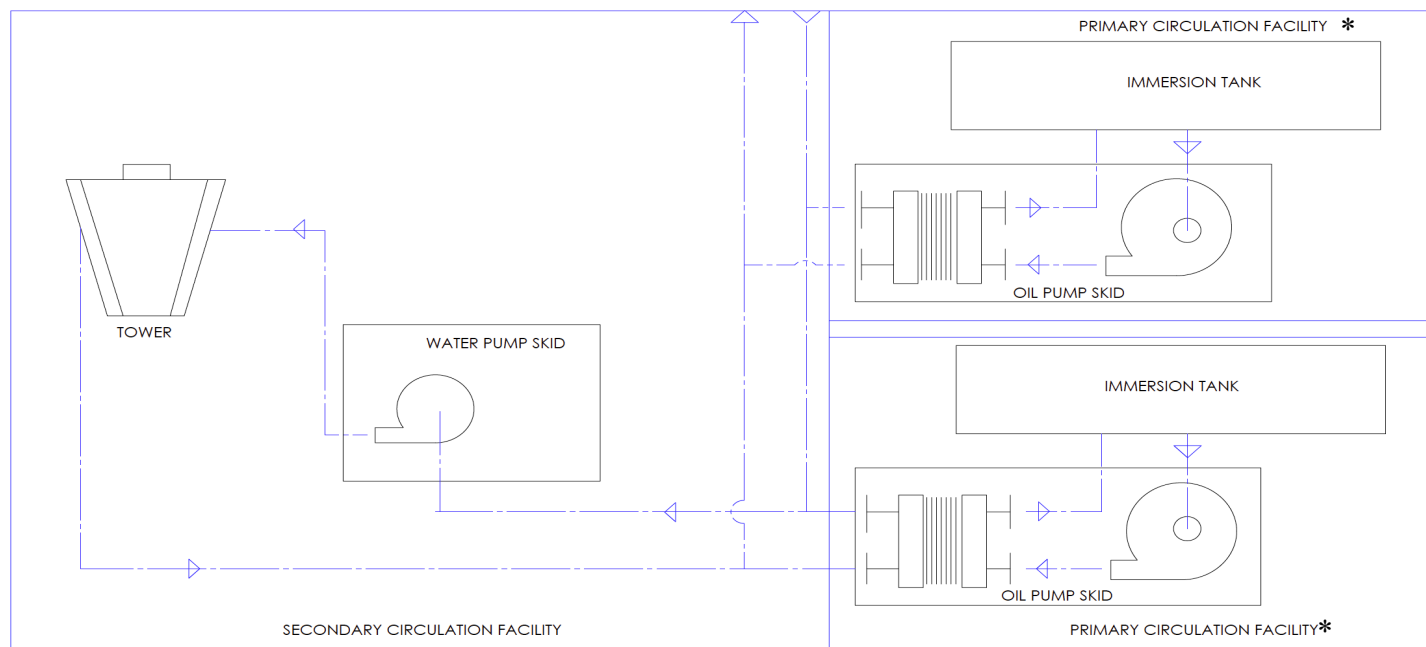
## '457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, e.g., the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)<sup>18</sup>



## ‘457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

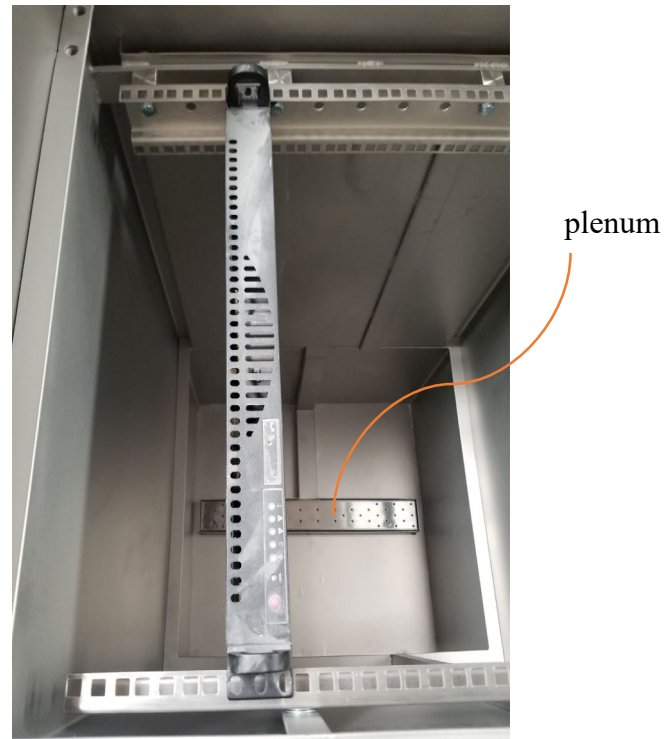
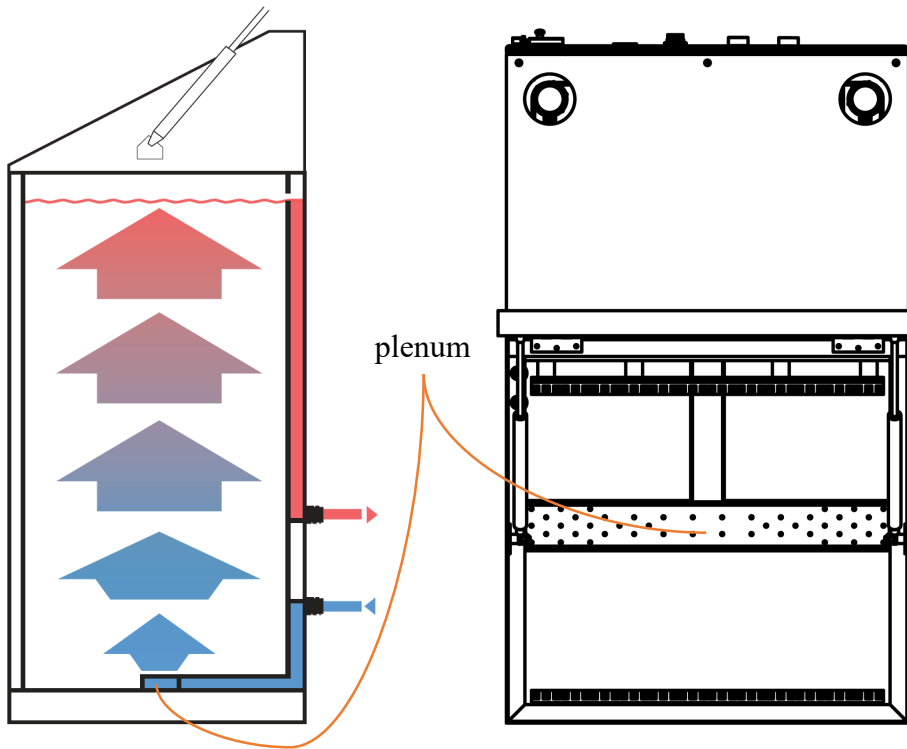
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



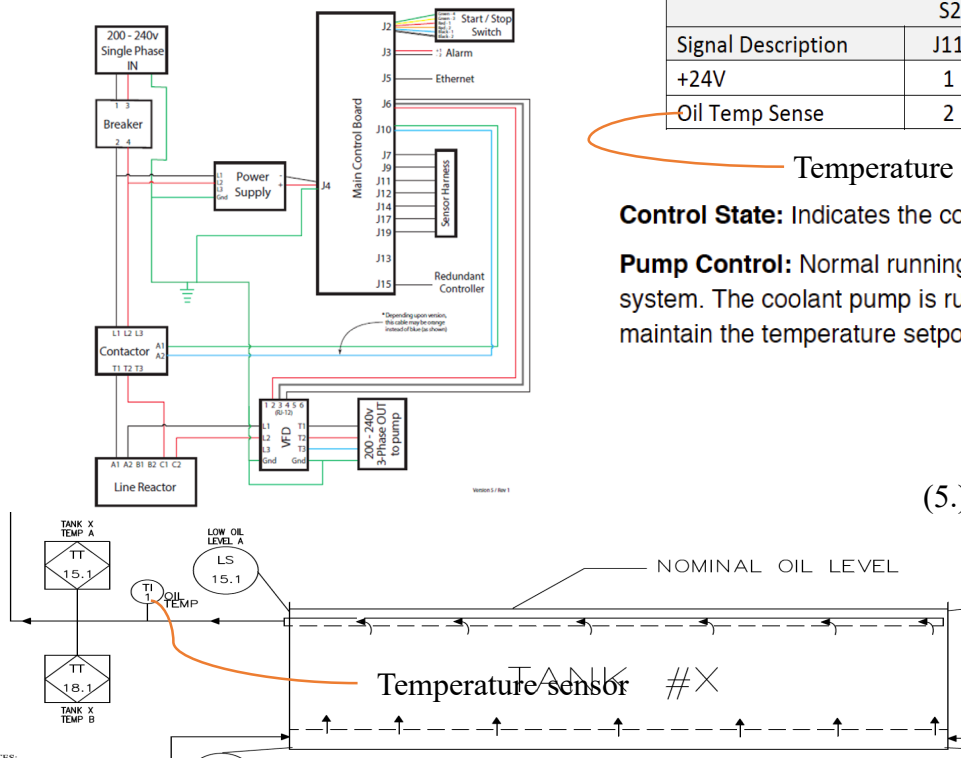
## '457 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

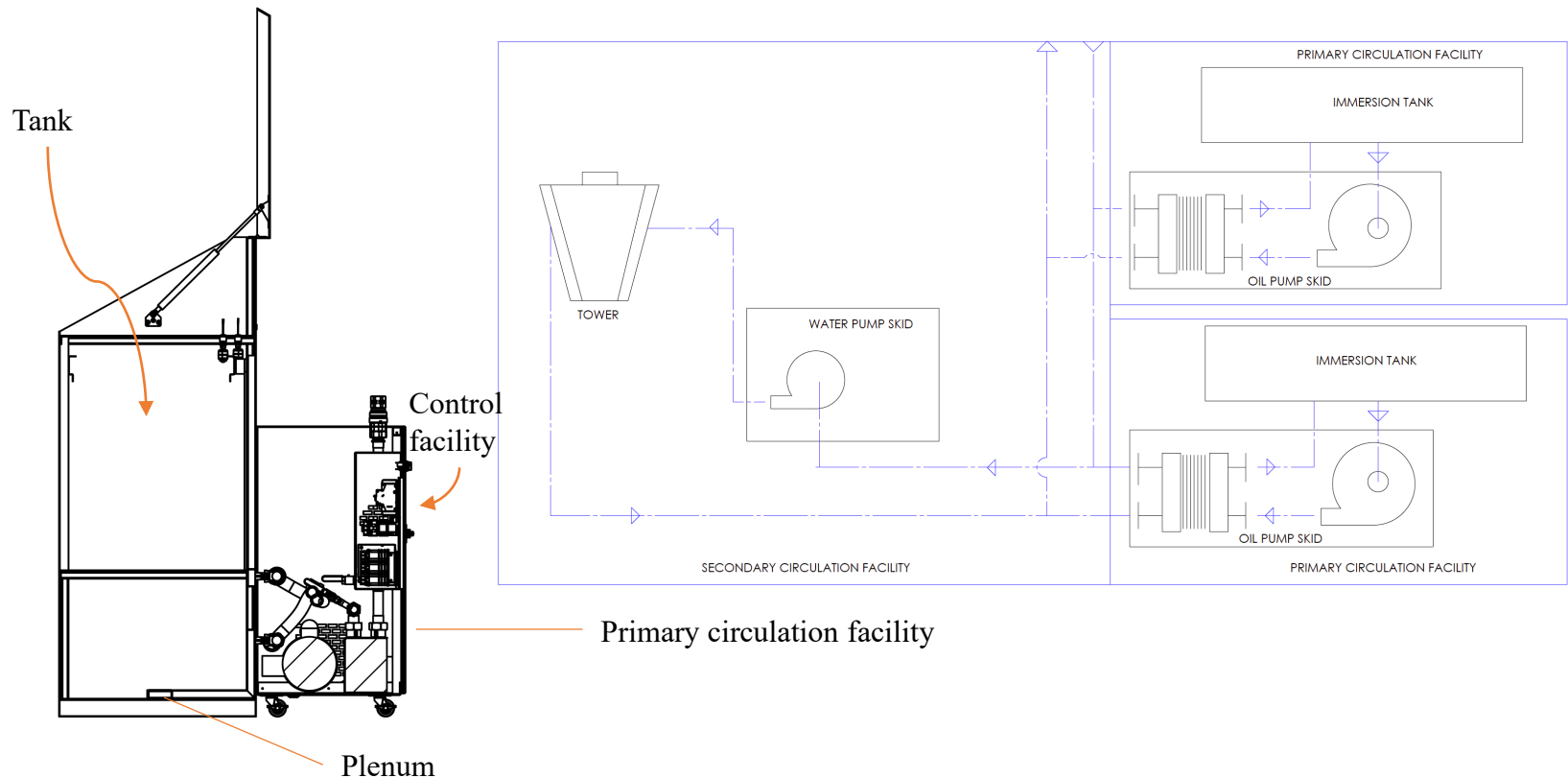
## ‘457 Dependent Claim 7 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The module of claim 6 wherein the tank and primary circulation facility comprise a highly-integrated module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the module of claim 6 wherein the tank and primary circulation facility comprise a highly-integrated module.



## '457 Claim 10 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

#### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

#### 4 Web Interface

##### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## ‘457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.”  
*See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

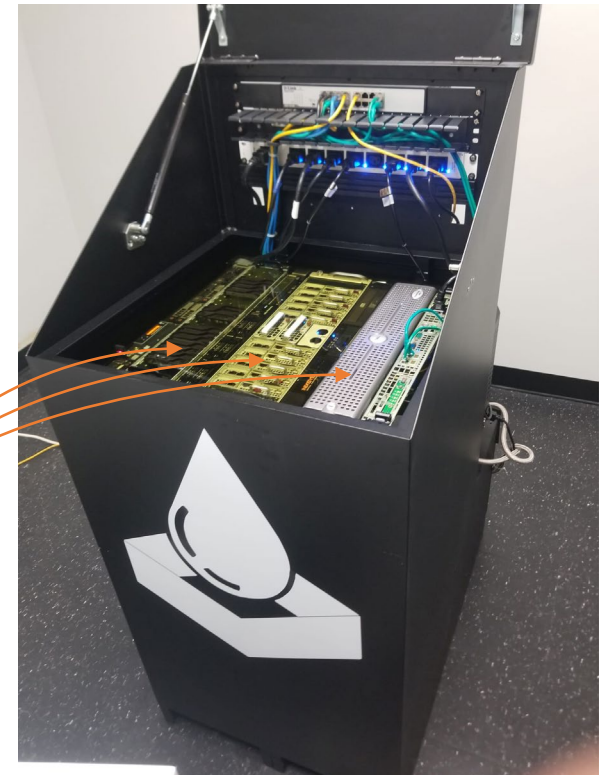
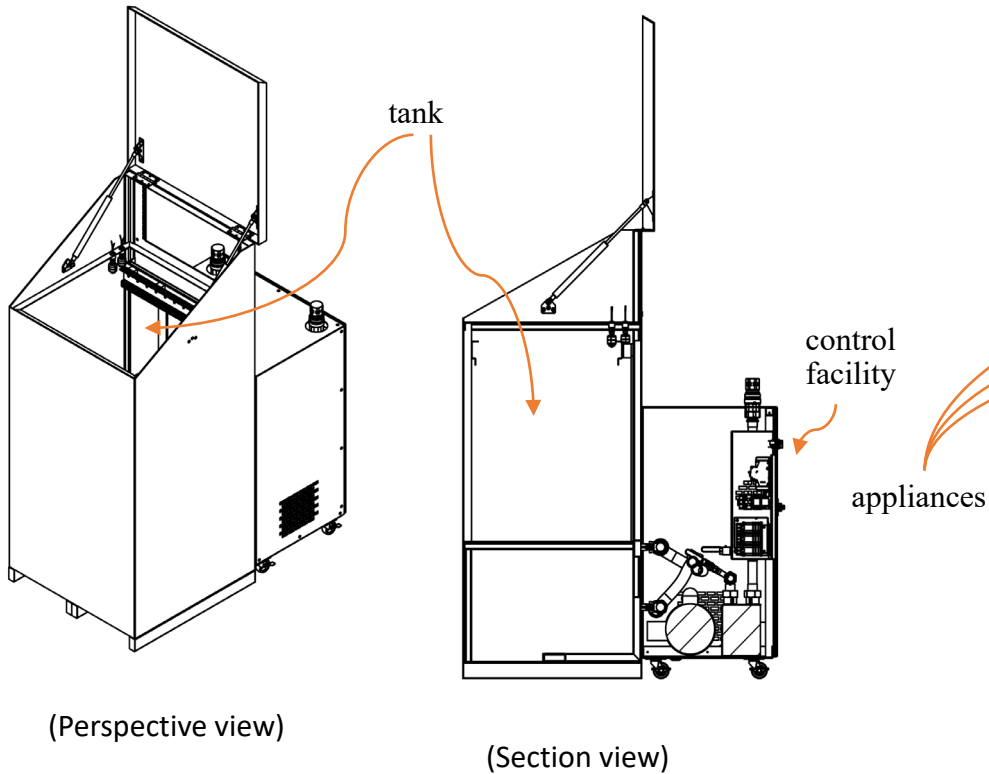
## ‘457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.





## ‘457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



## ‘457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.

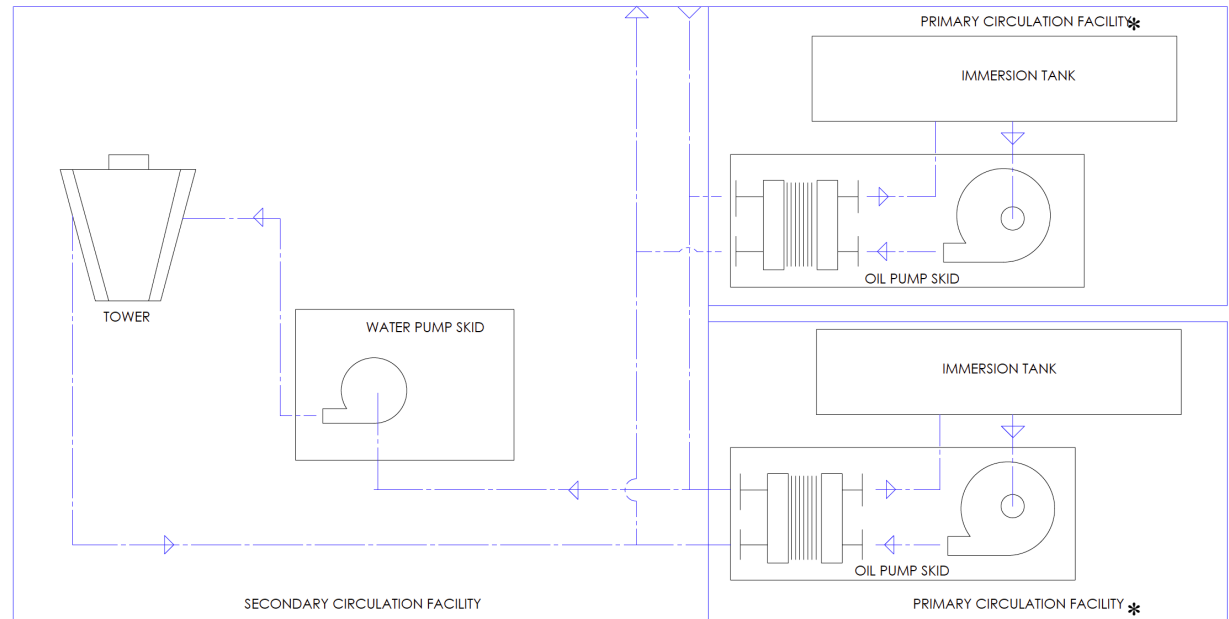


The weir



a primary circulation facility adapted to circulate the dielectric fluid through the tank ,

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)<sup>27</sup>

## ‘457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

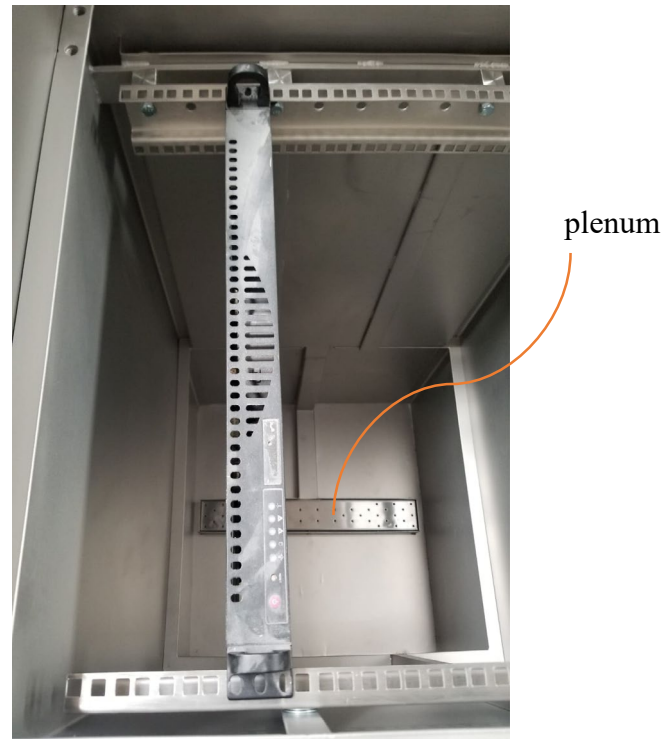
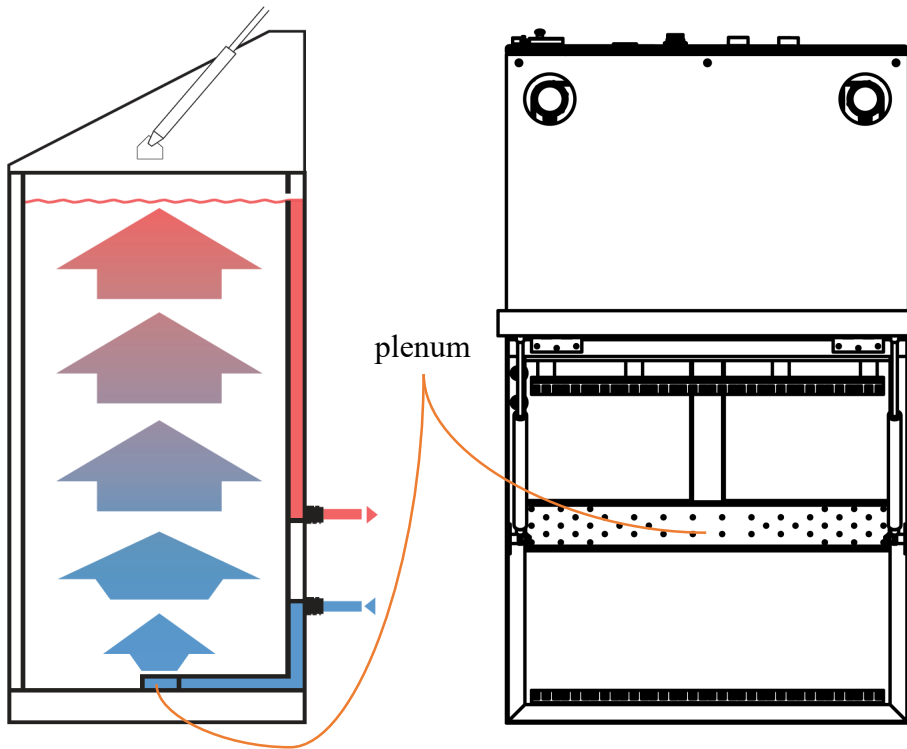
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



# '457 Claim 11 Chart of MGT Commercial Embodiment - 12U Tank

## Asserted Claim Elements

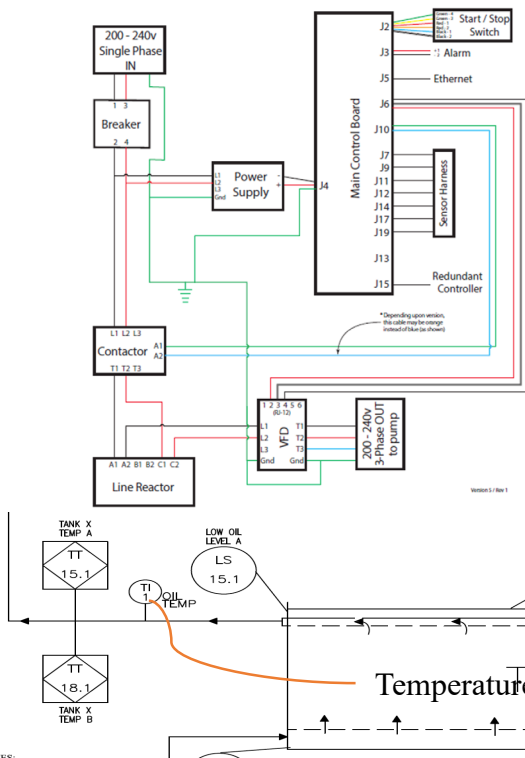
a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

## '457 Claim 14 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The module of claim 11 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

#### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

#### 4 Web Interface

##### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.

## ‘457 Claim 15 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

An appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

The MGT Commercial Embodiment includes an appliance immersion cooling system comprising a tank module according to any one of the preceding claims 11 through 14.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. (1.)

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

See charted claims 11–14 in reference to a tank module according to any one of the preceding claims 11 through 14.

## ‘457 Dependent Claim 16 Chart of MGT Commercial Embodiment - 12U Tank

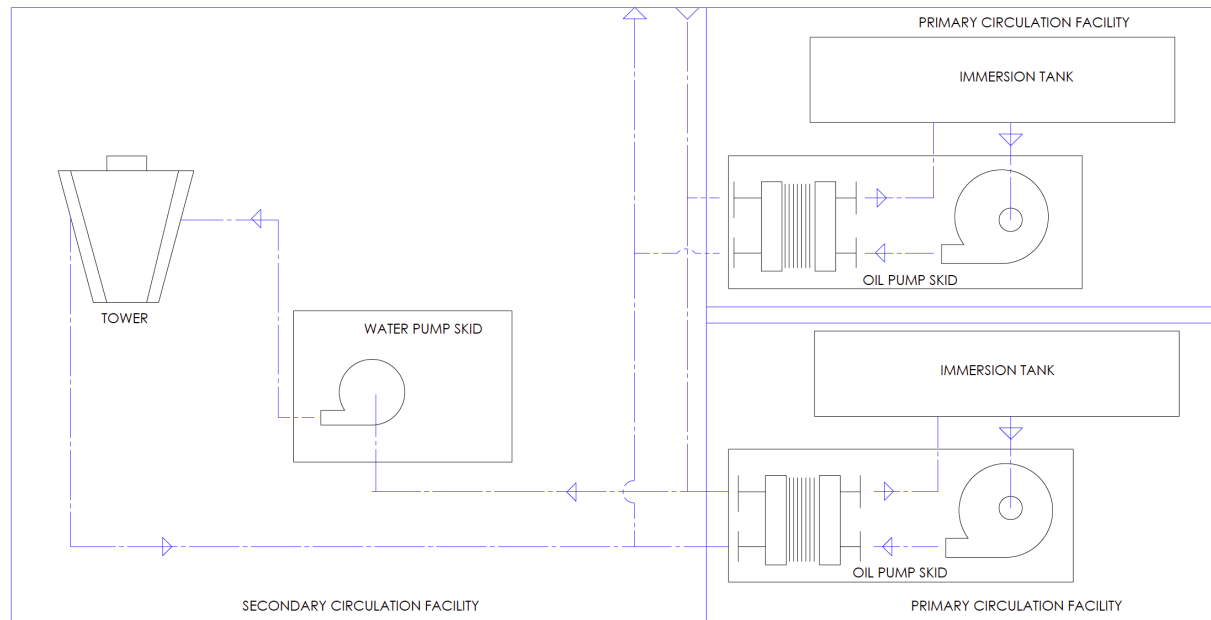
### Asserted Claim Elements

An appliance immersion cooling system according to claim 15, further comprising:

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes an appliance immersion cooling system according to claim 15, further comprising a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

An appliance immersion cooling system comprising:

The MGT Commercial Embodiment is an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.” *See generally* MIDAS0044216-44293.

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## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)



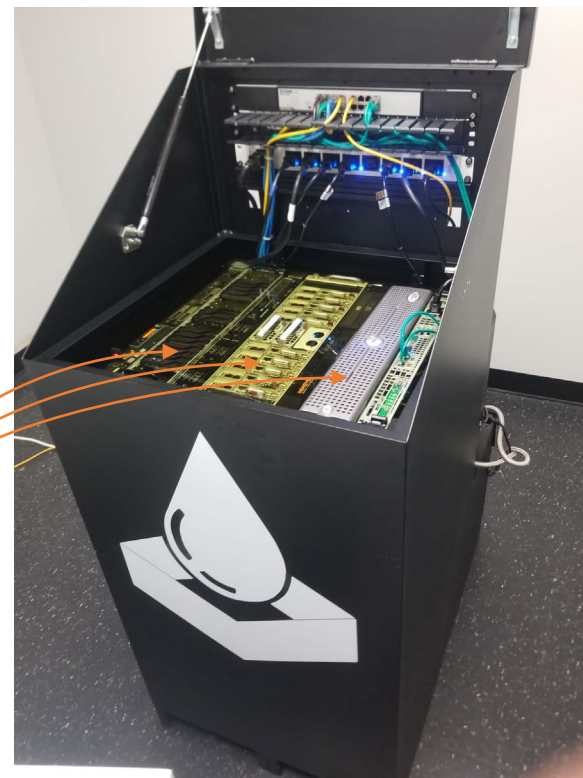
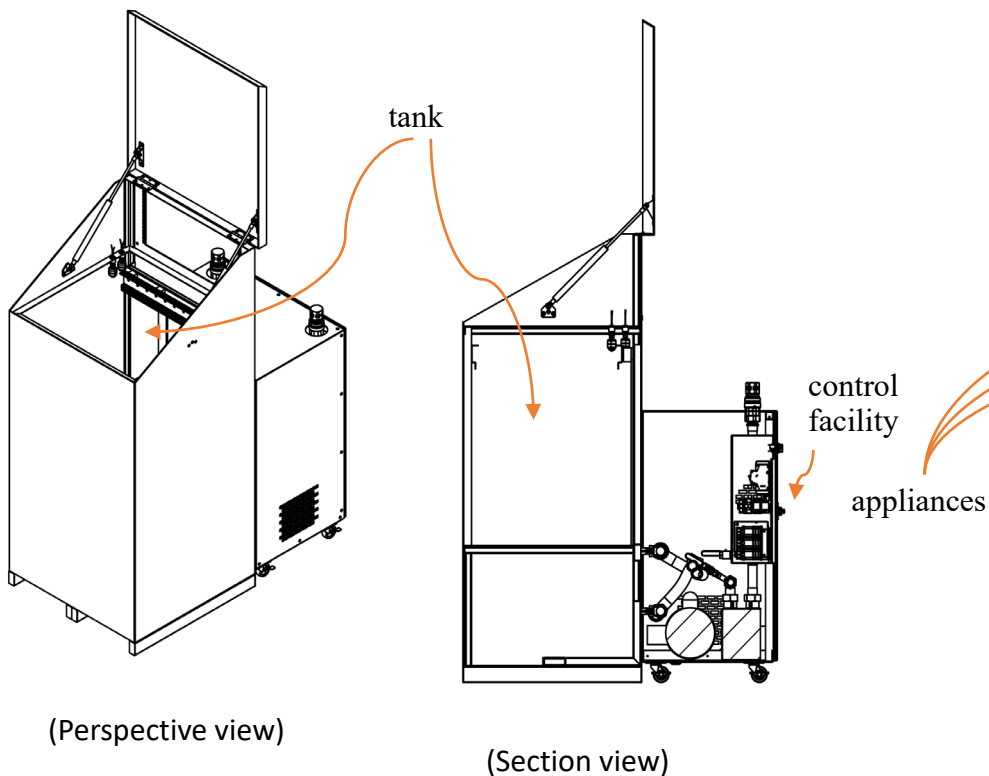
## ‘446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.





## '446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank.



## ‘446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



The weir

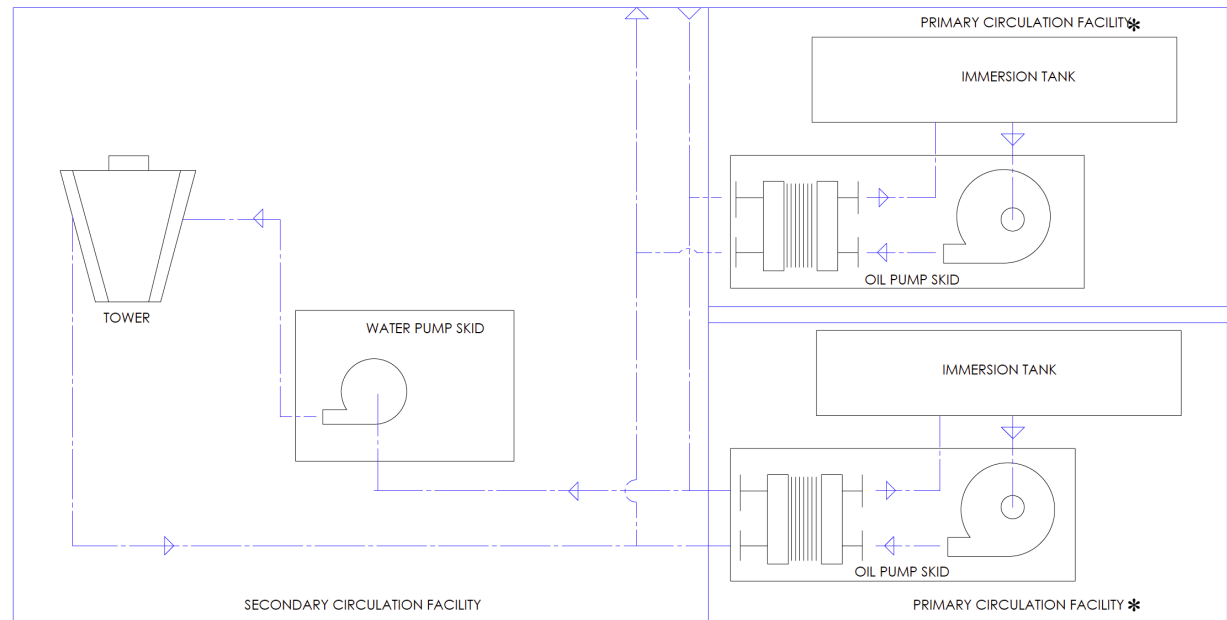
## '446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

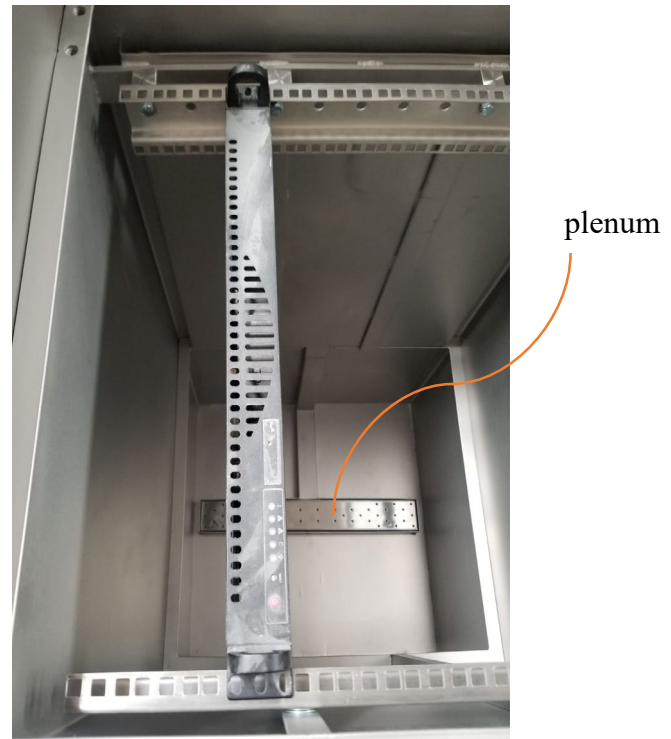
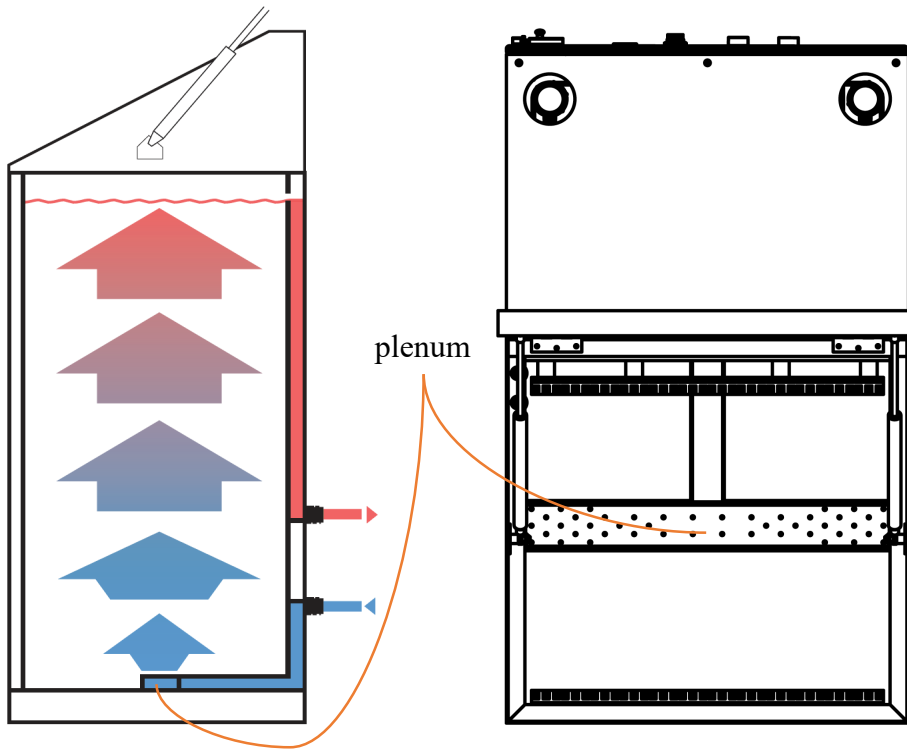
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot;

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.



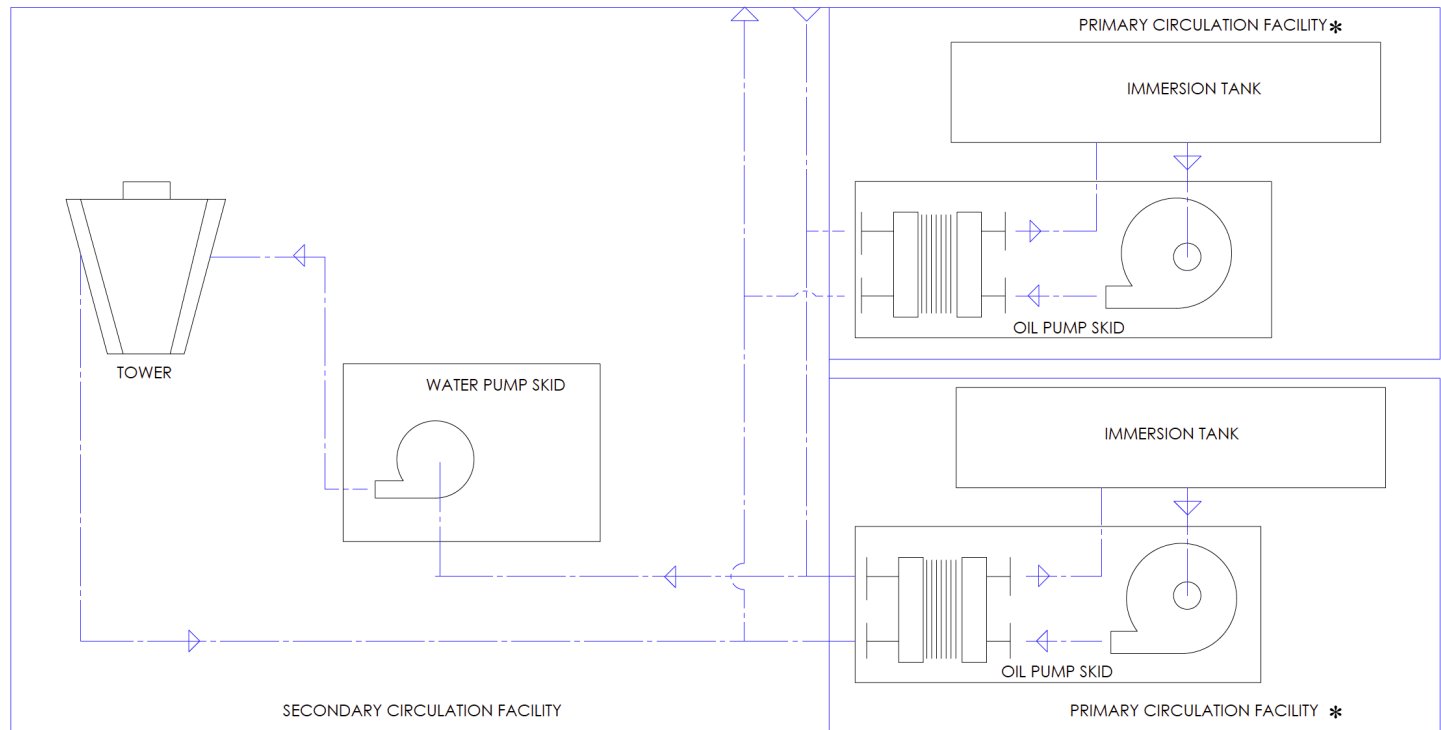
## '446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a secondary fluid circulation facility adapted to extract heat from the dielectric fluid circulating in the primary circulation facility, and to dissipate to the environment the heat so extracted.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

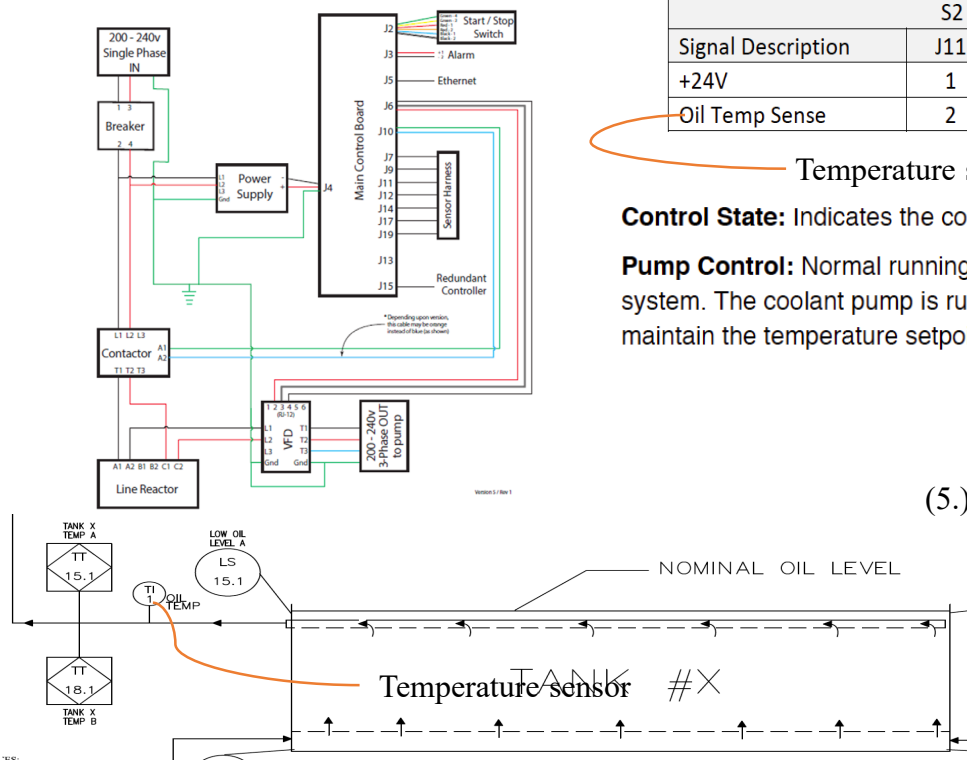
# '446 Claim 1 Chart of MGT Commercial Embodiment - 12U Tank

## Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary and secondary fluid circulation facilities as a function of the temperature of the dielectric fluid in the tank

(3.)

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

(Original Issue 5-10-2013; Release 4-2-2014)

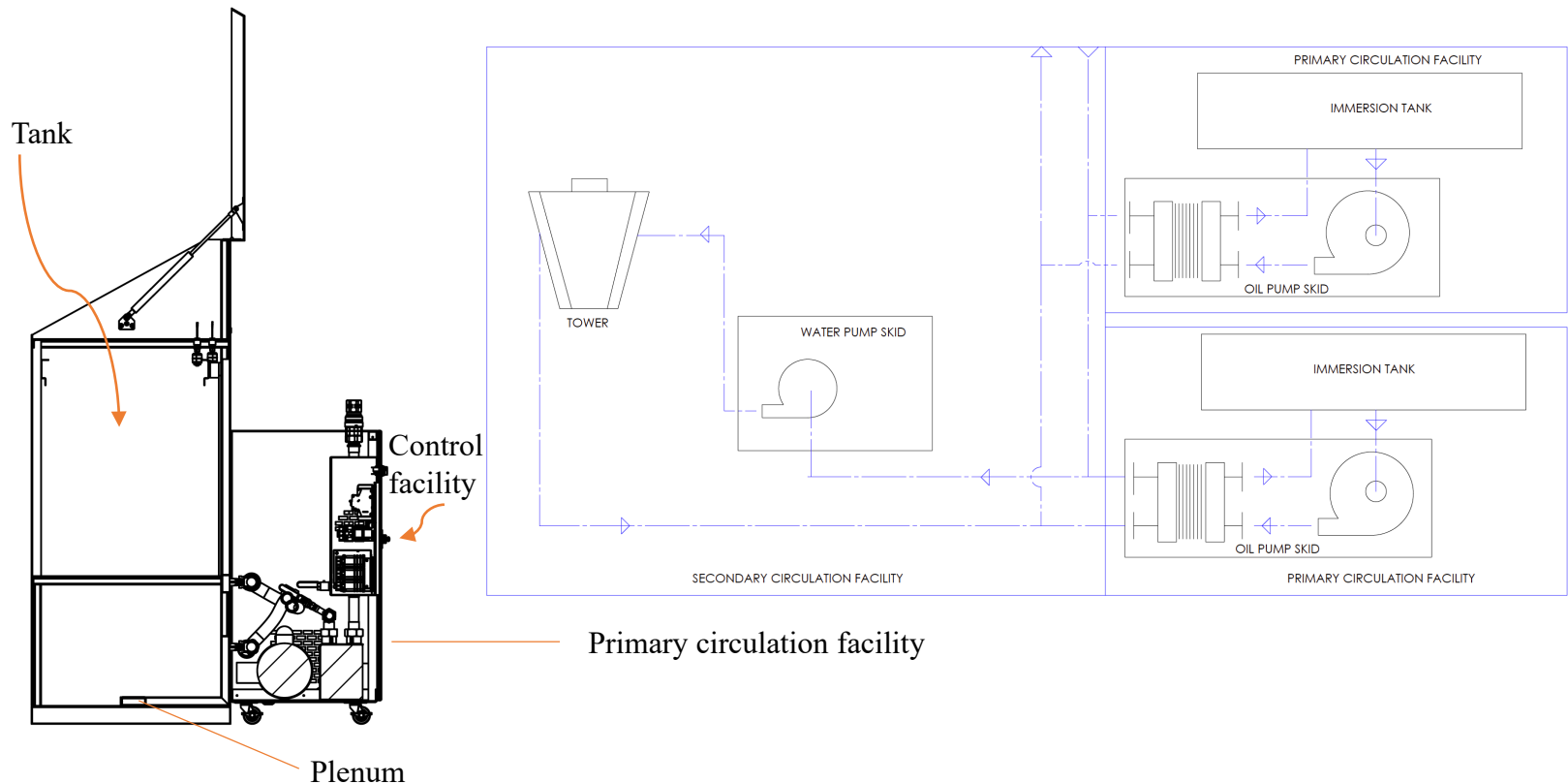
## ‘446 Dependent Claim 2 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment include the system of claim 1 wherein the tank and primary circulation facility comprise a tightly co-located module.



# '446 Claim 5 Chart of MGT Commercial Embodiment - 12U Tank

## Asserted Claim Elements

The system of claim 1 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location

### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

### 4 Web Interface

#### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.



## ‘446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

A tank module adapted for use in an appliance immersion cooling system, the tank module comprising:

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment is a tank module adapted for use in an appliance immersion cooling system. “Appliance” includes “contemporary computer servers.”  
*See generally* MIDAS0044216-44293.

---

## 1 The Midas XCI System

### 1.1 Immersion Cooling

Immersion cooling is a technique that submerges electronic and or other communication equipment in a large container filled with a dielectric coolant. Electronics may require some modifications, including, but not limited to the removal of fans. The dielectric liquid is circulated through the container around the equipment and it is normally pumped to a heat exchanger tied to a heat rejection system.

As dielectric liquids are over 1000 times more efficient at dissipating heat than air, immersion cooling provides improved efficiency, density, and reduces the footprint of a data center. The increase in heat dissipation capacity allows operators to maintain extremely stable high temperature set points. Immersion cooling technologies offer data center operators highly efficient cooling in a wider choice of locations and climates.

Open bath cooling systems provide support for the widest variety of electronic systems. Almost any type of heat generating electronic equipment can be cooled in an open bath system. <sup>(1.)</sup>

(1.) *Midas XCI System User Manual*, pg. 10, Midas Green Technologies, LLC (2021)

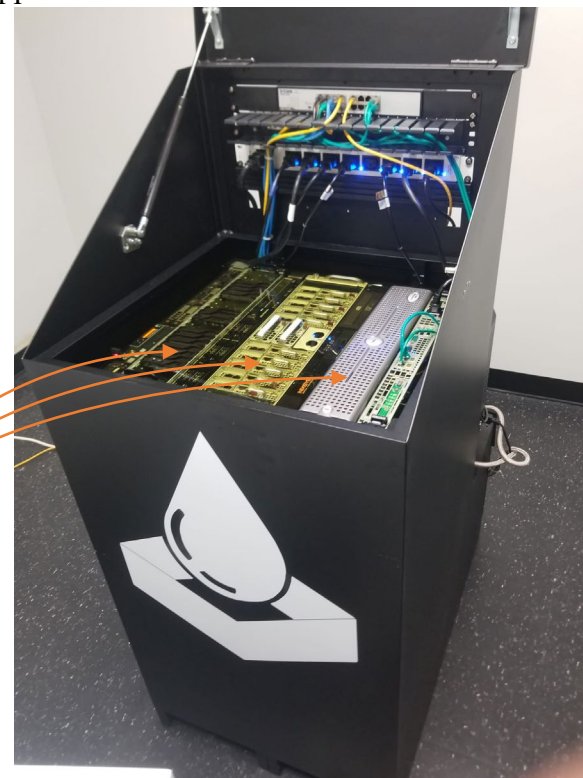
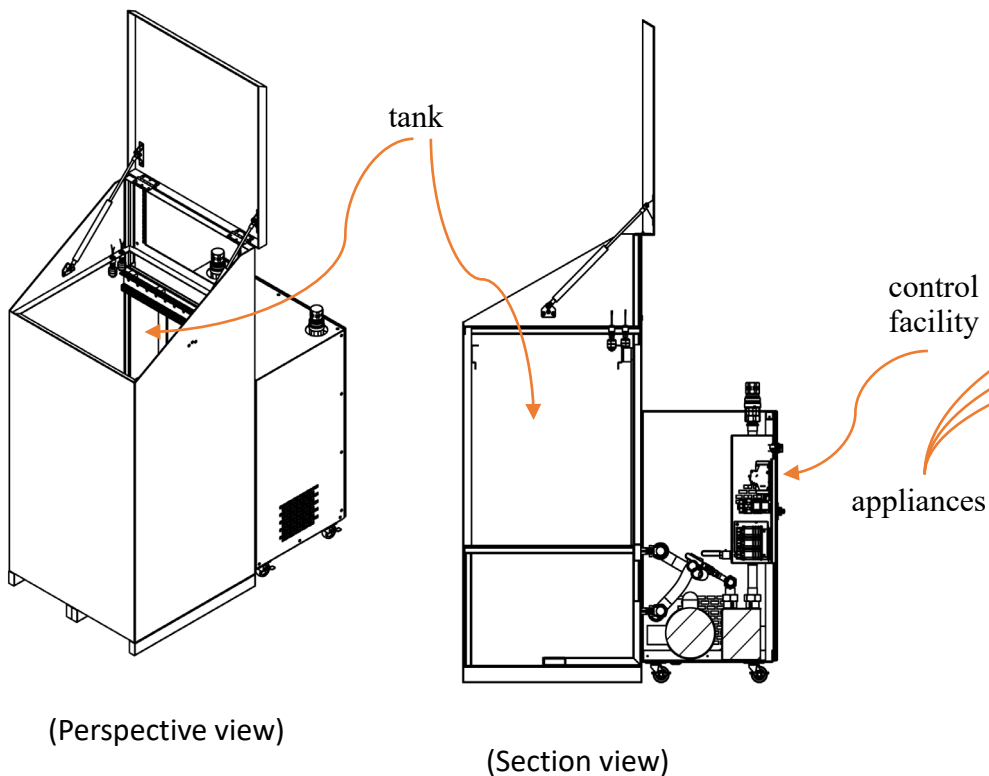
## ‘446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a tank adapted to immerse in a dielectric fluid a plurality of electrical appliances,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank. The tank is adapted to immerse in a dielectric fluid, a plurality of electrical appliances.



## ‘446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

each in a respective appliance slot distributed vertically along, and extending transverse to, a long wall of the tank,



### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes appliance slots, *e.g.*, each slot receiving a respective appliance, each of those slots being distributed vertically along, *e.g.*, the appliance slot is distributed vertically down into the tank, and extending transverse to the long wall of the tank



## ‘446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

the tank comprising:

a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a tank that includes a weir, integrated horizontally into the long wall of the tank adjacent all appliance slots, *e.g.*, the weir adapted to facilitate substantially uniform recovery of the dielectric fluid flowing through each appliance slot, *e.g.*, the dielectric fluid in the tank flows over the weir extending along the long wall of the tank, thus facilitating substantially uniform recovery of the fluid flowing through each appliance slot in the tank.



The weir

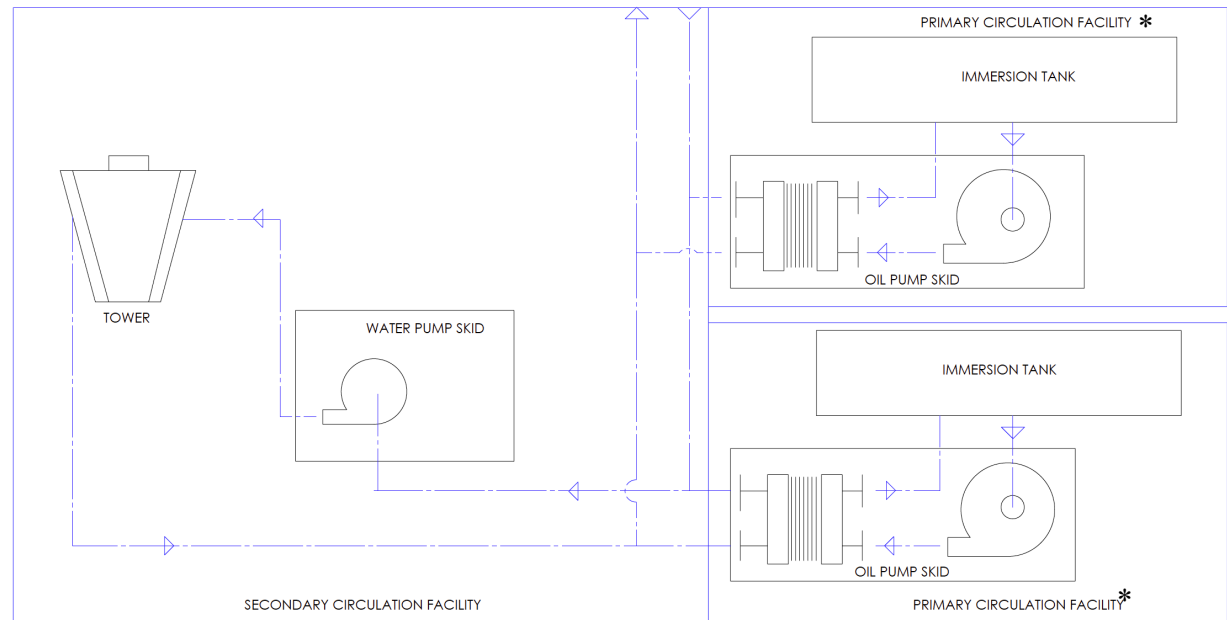
## '446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

a primary circulation facility adapted to circulate the dielectric fluid through the tank,

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility adapted to circulate the dielectric fluid through the tank, *e.g.*, the pump sends the hot dielectric fluid out to the heat exchanger; cooled dielectric fluid returns to the tank, entering the plenum positioned adjacent the bottom of the tank; and the dielectric fluid moves up through the tank to the previously illustrated weir, then into the recovery reservoir, out to the collection tank, and back to the pump.



(\*Two immersion cooling systems sharing a common secondary circulation facility are illustrated.)

## ‘446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

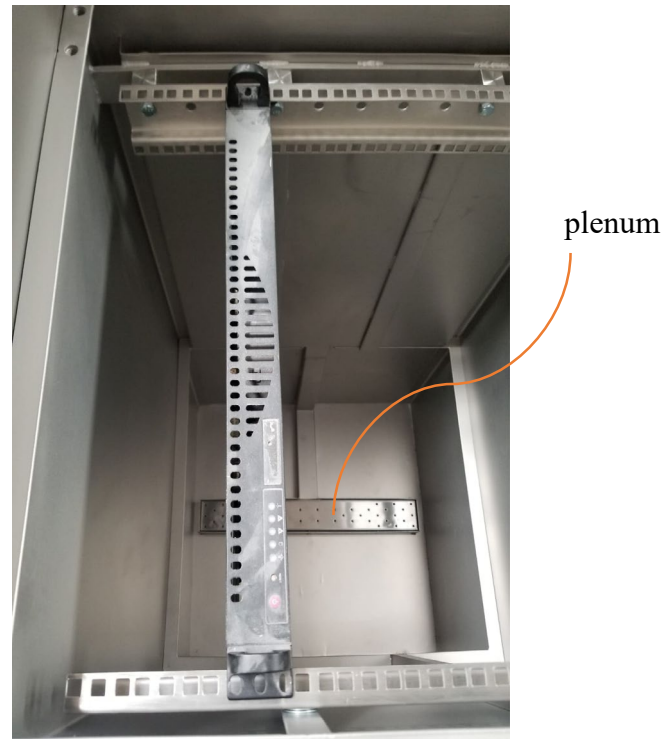
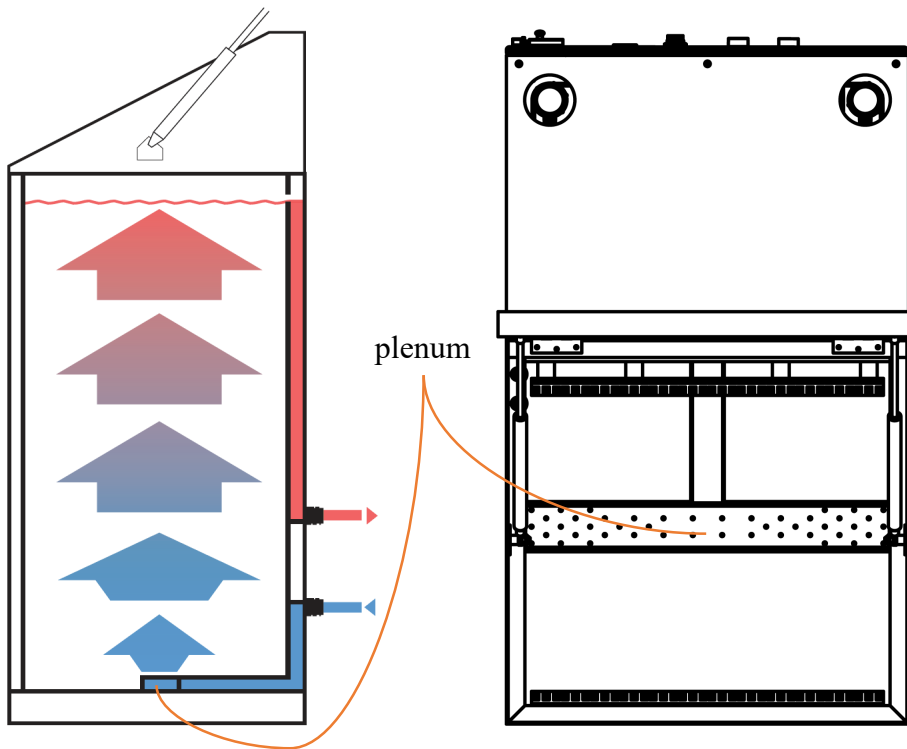
### Asserted Claim Elements

comprising:

a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot; and

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a primary circulation facility that includes a plenum, positioned adjacent the bottom of the tank, adapted to dispense the dielectric fluid substantially uniformly upwardly through each appliance slot.





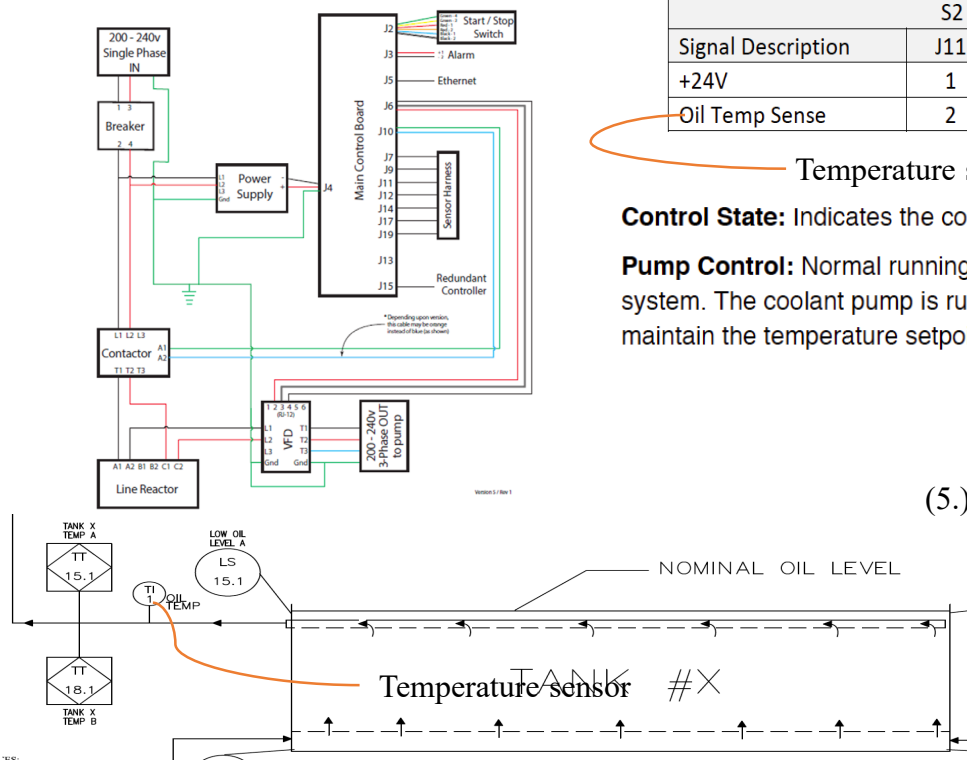
# '446 Claim 6 Chart of MGT Commercial Embodiment - 12U Tank

## Asserted Claim Elements

a control facility adapted to coordinate the operation of the primary fluid circulation facility as a function of the temperature of the dielectric fluid in the tank.

10.13MIDAS XCI 12U CONTROLLER WIRING DIAGRAM

(2.)



## Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes a control facility adapted to coordinate the operation of the primary circulation facility as a function of the temperature of the dielectric fluid in the tank.

S2 Oil Tank Outlet Temperature Sensor			
Signal Description	J11	XTP25N-050-0100C	P31674
+24V	1	Brown-1	Black-5
Oil Temp Sense	2	Blue-3	White-6

(3.)

Temperature sensor

**Control State:** Indicates the cooling status of the system.

**Pump Control:** Normal running mode. This mode indicates the Cooling module is providing cooling to the system. The coolant pump is running between specified minimum and maximum pump speeds to maintain the temperature setpoint(4.)

(5.)

(2.) Midas XCI System User Manual, pg. 81.

(3.) Midas XCI System User Manual, pg. 83.

(4.) Midas XCI System User Manual, pg. 28.

(5.) Midas Green Tech Tank & Oil Cooling P&ID System, pg. 1 of 1, Deaton Engineering, Inc.

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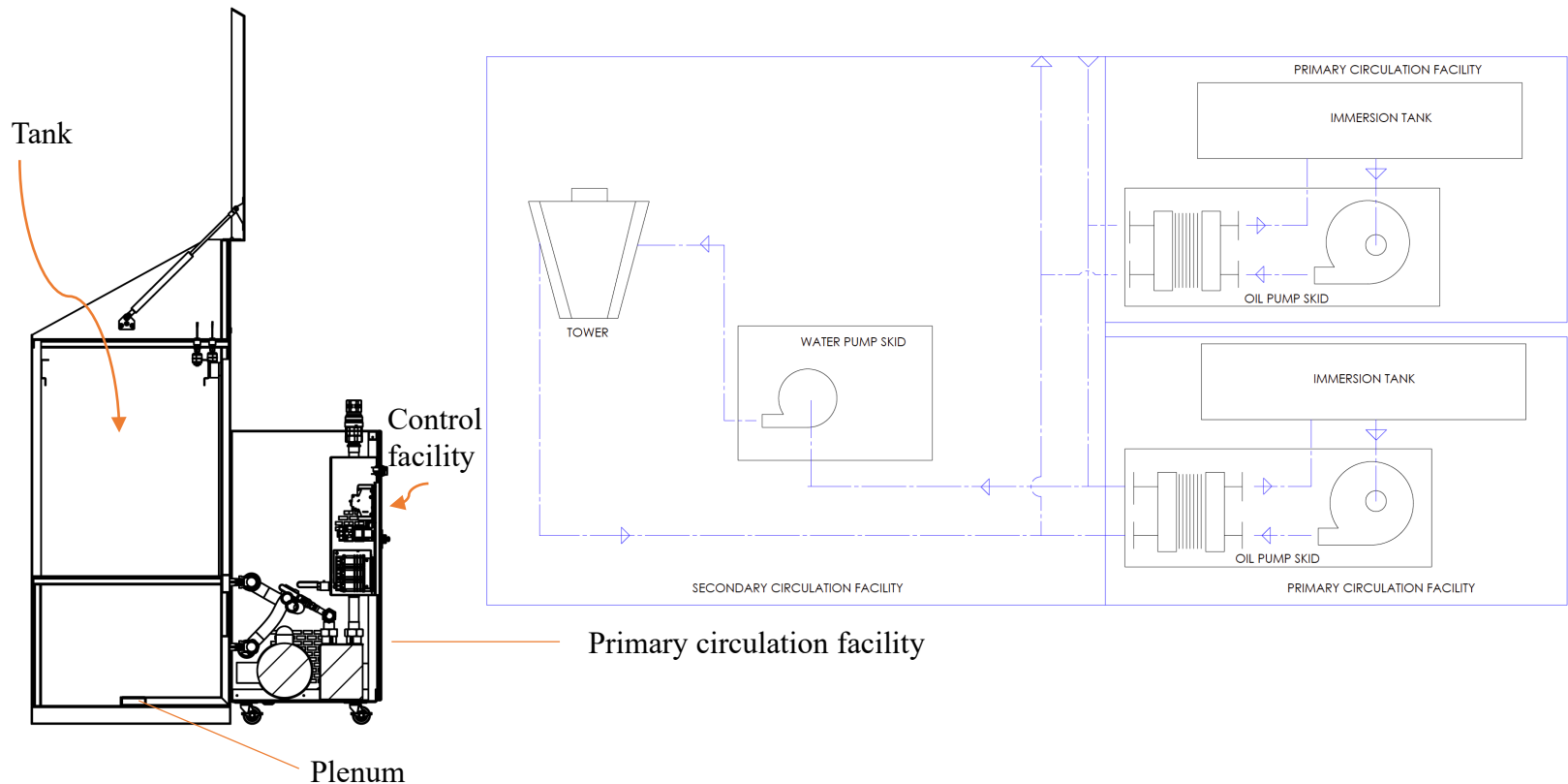
## ‘446 Dependent Claim 7 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment include the module of claim 6 wherein the tank and primary circulation facility comprise a tightly co-located module.





## '446 Claim 10 Chart of MGT Commercial Embodiment - 12U Tank

### Asserted Claim Elements

The module of claim 6 wherein the control facility further comprises a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

### Specific Identification Where Each Element is Found Within MGT Commercial Embodiment

The MGT Commercial Embodiment includes the control facility that further includes a communication facility adapted to facilitate monitoring and control of the control facility from a remote location.

#### 4.3 Settings

(6.)

(6.) Midas XCI System User Manual, pg. 10.

#### 4 Web Interface

##### 4.1 Main Status

(7.)

(7.) Midas XCI System User Manual, pg. 27.